V.30
Fish

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Volume 30, Index 1973

Environment Canada
Fisheries and Marine Service

Environnement Canada
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The *Journal of the Fisheries Research Board of Canada* has been published continously since 1901, previously as *Contributions to Canadian Biology*, 1901–1925, *Contributions to Canadian Biology and Fisheries*, 1926–1934, and *Journal of the Biological Board of Canada*, 1934–1937. The *Journal* is published in annual volumes of twelve numbers.

The *Journal* is devoted to original research papers and notes concerning aquatic organisms or environments relevant to Canada. Review articles that are critical appraisals of broad areas of research are also welcomed. Submissions in English or French are accepted without limitations as to origin, but must not have been published or copyrighted. Details on submissions are given in the guides to authors and typists at the back of this issue. Reprints of the guides are available free from the Office of the Editor.

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INDEX TO PUBLICATIONS FOR 1973[1]

In 1968 the Fisheries Research Board of Canada published Bulletin 164, containing a list of all articles, in all series, of publications and Studies that appeared up to the end of 1964, together with a subject–author index to all series. In 1973 Fisheries Research Board of Canada published Miscellaneous Special Publication 18, also containing a list of all articles in all series, of publications and Studies that appeared from January 1965 to December 1972. From 1965 on, a subject–author index and list of all Board publications (including Studies, Interpretive Articles, and Miscellaneous Special Publications) have been included in the last issue of each Journal volume. These follow the pattern and style used in Bulletin 164.

The present subject–author index is based on: (a) the 12 issues of Volume 30 of the Journal (Issue 12 consists of two parts. Part 1, a regular Journal issue, is indexed herein. Part 2, a special publication on the FAO Technical Conference on Fishery Management and Development, held in Vancouver, B.C., Feb. 12–23, 1973, contains its own index, and only authors and general interest headings are included in this issue); (b) Bulletins 180, 181, 182, 183, and 184 issued during 1973 (No. 180 and 184 are not subject-author indexed in detail as they contain their own indices); (c) Circular series and Technical Reports from the Board's establishments issued during 1973 in time to be included; (d) Miscellaneous Special Publications (include special bindings and pamphlets that do not belong to a particular series of FRB publications) No. 17, 18, 19, and 20; (e) Studies No. 1730–1858, reprints of articles published in other periodicals (annual two-part bindings ceased with the 1969, Part 2 issue); (f) general reference to the 1972 Annual Report and the 1971–1972 Review; (g) Interpretive Articles 264 and 273–288 that appeared in non-Board publications.

[1] Index prepared by Neal M. Carter.

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ABBREVIATIONS USED IN THE INDEX

(The designation (F) or (S) in the index indicates the article referred to was published in French or Spanish)

J – Journal of the Fisheries Research Board of Canada
B – Bulletins of the Fisheries Research Board of Canada
AR – Annual Reports of the Fisheries Research Board of Canada
R – Reviews of the Fisheries Research Board of Canada
CHN – Circulars of the Board's Halifax Laboratory
CJG – Circulars of the Board's Biological Station, St. John's, Newfoundland
CNG – Circulars of the Board's Biological Station, Nanaimo, B.C. (general series)
T – Technical Reports of the Board's establishments
MSP – Miscellaneous Special Publications of the Board and its establishments
S – Studies series
A – Interpretive Articles series

The Provinces and Territories of Canada are abbreviated to:

Alta. (Alberta)
B.C. (British Columbia)
Man. (Manitoba)
N.B. (New Brunswick)
Nfld. (Newfoundland)
N.S. (Nova Scotia)
N.W.T. (Northwest Territories)
Ont. (Ontario)
P.E.I. (Prince Edward Island)
Que. (Quebec)
Sask. (Saskatchewan)
Yuk. (Yukon Territory)

Certain geographical areas (particularly oceans) have their major subdivisions designated by N (north), S (south), E (east), W (west), NW (northwest), etc., also Atl. (Atlantic), Pac. (Pacific).

Certain international commissions are commonly referred to as: ICNAF (International Commission for the Northwest Atlantic Fisheries); INPFC (International North Pacific Fisheries Commission).

In the index references, "re" is frequently used to imply "in connection with," and similar meanings; "vs." to imply such meanings as "in contrast to," "as opposed to."

Scientific names, common names, and their spellings, for Canadian and American marine fishes taken within 200-m depth and for freshwater fishes are indexed according to the nomenclature recommended in *A List of Common and Scientific Names of Fishes from the United States and Canada* (Third Edition, 1970), Special Publication No. 6 of the American Fisheries Society. Where authors have used names or spellings not conforming to those recommended, index headings for such names are included, referring to the recommended ones under which the subject entries will be found.

KEY TO FISHERIES RESEARCH BOARD OF CANADA ESTABLISHMENTS

The number in front of each address corresponds to the number shown at the end of titles in some of the listed series of publications to indicate from which establishment the publication or report originated, or may be obtained.

(1) Department of the Environment
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(10): 1511 (for enclosing rocks for measuring epilithiphyton photosynthesis)
(10): 1537 (for adenosine triphosphate assay with firefly lantern extract)
(10): 1581 (simulating motion of animals (e.g. salmon) through the geomagnetic field)
(10): 1594 (recording avoidance movements of fish)
(11): 1705 (respirometer re trout & carp activity during recovery from anesthesia & surgery)
(11): 1749 (portable wire-speed indicator for plankton nets)
(12,1): 1771 (oxygraph for photosynthesis physiological study)
(12,1): 1882 (re periphytic algae changes after bicarbonate addition to a small stream)
CJG 19 (mop, etc. for commercial sea urchin fishery)
CNG 95 (net for collecting stream insects)
T 341 (actograph for recording locomotor activity of laterally or ventrally compressed aquatic organisms of medium size)
343; 366 (fish processing waste clarification by chemical treatment & air flotation)
348 (sockeye salmon fry trapping & marking, Fulton R., Babine L., B.C.)
350 (high-frequency sonar for mapping euphausid concentrations in sea)
362 (odometer for measuring speed & distance of Irish moss rakes)
366 (secondary clarification treatment of salmon-canning wastewater)
369 (safety modification for vacuum closer canning machine)
374 (electromagnetic jigger & gear locator for under-ice gillnetting)
377 (tidal holding pond for lobsters)
S 1736 (for producing water of constant pH in a flowing system)
1743 (cuvette for amperometric measurement of hydrogen evolution by an alga)

1775 (re studies of silvery reflectiveness of Atl. salmon skin & scales)
1810 (instantaneous explosive branding of seals)
1815 (compressimeter for compressibility of seawater solutions)
1818 (improved filtration & concentration techniques for preparing microalgae for electron microscopy)
A 283 (patented synthetic cultch ("Cultchettes") for collecting oyster spat)
284 (portable refrigerated seawater chilling unit for Central American fisheries (in Spanish & English))
285 (freezing or refrigerated sea water for holding shrimp on Central American trawlers (in Spanish & English))
287 (brine spray freezing system for Central American small tuna seiners (in Spanish & English))
292 (net enclosures re aquaculture of salmonids in Norway)
294 (re Eskimo ringed seal fishery)
295 (ultrasonic tracking of Atl. salmon)

Appleyard, Walter Philip
J 30(12,2):2236 (establishment of food fish industry in Peru)

Aquaculture (*see also* Aquaria; Culture; Feed; Nutrients, aquatic; Pond)
J 30(12,2):(several papers in that special issue on proceedings of FAO Technical Conference on Fishery Management and Development (Vancouver, B.C., Feb. 13–23, 1973); *see* separate index in that issue)

Aquaria
J 30(1): 126 (for maintaining midwater fishes in captivity)
A 291 (popularity of B.C. coastal marine mammals for exhibition in)

Arai, Hisao Philip
S 1832 (helminths of NE Pac. ocean perch)

Arai, Mary Needler
J 30(4): 551 (*Aglantha digitale* trachymedusa diel migration & breeding cycle)
(8): 1105 (planktonic coelenterate behavior in salinity discontinuity layers)

Arctic (*see also* Alaska; Northwest Territories; Victoria Island)
J 30(4): 554 (notes on Colville R. whitefish, N Alaska)
(5): 665 (Nearctic & Palearctic chironomidae)
(6): 717 (Arctic char respiration in a Canadian arctic lake)
(6): 835 (in situ primary productivity measurement of algae in sea ice)
(8): 1179 (ninespine stickleback energy budget in an Alaskan lake)
B 181 (ringed seal population dynamics, in E Canadian)
184: 8 (list of freshwater fishes in Canadian portion of drainage basin)
S 1843 (observations of 48 bird species, Victoria Is., W Canadian, 1971)
A 294 (management research re E Canadian arctic ringed seal hunting)

Arctica islandica (*see* Quahog, ocean)

Argentina silus (*see* Argentine, Atlantic)

Argentine, Atlantic (*Argentina silus*)
T 402 (re fish assemblages)

Arginine (*see* Acids, amino)

Argyle, Ray Leroy
J 30(11): 1743 (endrin uptake & release by young channel catfish)

Argyropelecus sp. (*see* Hatchetfish)

Arie, Benzoin
S 1855 (paradoxical effects of salinity reduction effects re lobster gaffkemia)

Armstrong, Francis Adolf John
J 30(6): 843 (mercury in Atl. seal tissues)
S 1745; 1801 (mercury in muscle & liver of various Canadian prairie ducks)

Aroclor (*see* Polychlorinated biphenyls)

Asada, Y.
J 30(12,2):2085 (Japanese license experience)

Arsenic derivatives
J 30(2): 275 (content of various fishes inshore & offshore SE coast of USA)

Arthropoda (*see also* types of (e.g. Crustacea); *also* subclassification of, and names of species, e.g. Crab; Lobster)
T 385 (benthic, near shoreline of Howe Sound, B.C., re pollution)

Ascidiacea
T 385 (benthic, near shoreline of Howe Sound, B.C., re pollution)

Assemblages (*see also* Association; Schools)
T 402 (fish: analysis of, on SW Scotian Shelf)

Association (*see also* Communities)
T 397 (are species association coefficients really necessary?)
402 (method for compression of species association data by using habitat preferences)

Astarte, waved (*Astarte undata*) (a clam)
J 30(10): 1583 (gross structure of adductor muscle)

Asterias vulgaris (*see* Starfish, common)

Asterionella (*see* Photosynthesis)

Atheresthes stomias (*see* Flounder, arrowtooth)

Atlantic Ocean (*see also* Ocean; *also* Oceanography headings)
B 184: 5 (list of freshwater fishes in Canadian portion of NW drainage basin)
S 1781 (size distribution of particulate matter in north & south)
1786 (microorganism distribution & activity in NW)

Atton, Fredrick Mervyn
J 30(5): 643 (mercury uptake by caged rainbow trout, S Saskatchewan R.)
(5): 681 (columnaris disease outbreak in white suckers of a Sask. lake)

Aurelia (*see* Jellyfishes)

Aubray, Roger
J 30(12,2):2282(F) (fisheries development, W Africa)

Avoidance
J 30(10): 1594 (apparatus for recording fish movements to avoid chemicals introduced in a tank)

Ayles, George Burton
J 30(4): 579 (parental age re splake progeny survival)
T 382 (growth & survival of matched wild vs. domestic rainbow trout plantings in Canadian prairie pothole lakes)

Aythya (*see* Ducks)

Ayu (*Plecoglossus altivelus*) (a fish of Japan)
S 1785 (salmon pituitary gonadotropin induction of ovulation in)

B

Babine Lake, B.C.
J 30(1): 1(starvation & subsequent feeding effects on sockeye salmon fry survival & growth, Fulton R. artificial spawning channel)
(7): 947 (*Eubothrium salvelini* cestode infection effects on young sockeye)
T 348 (trapping & marking of sockeye fry, Fulton R.)
372 (marking sockeye fry at Fulton R. & Pinkut Creek)
378 (young sockeye diel vertical movements & feeding habits)
390 (purse seine catches of sockeye, etc., 1972)

Bacillariophyta (*see* Algae; Diatoms)

Bacteria; Bacteriology (in addition to the references below, for *Aeromonas salmonicida see* Furunculosis; re botulism, *see Clostridium botulinum*; for *Gaffkya homari* infection of lobsters, *see* Gaffkemia, *also* Lobster, American; for *Chondrococcus columnaris see* Columnaris disease) (*See also* Antibodies; Bacteriophage; Disease; Preservatives; Quality of fishery products)
J 30(2): 269 (tested for efficacy of ethylene oxide sterilization of fish feeds)
(2): 296 (nutritional factors re corynebacterial kidney disease; biochemical pathology of coho salmon)
(4): 549; (10): 1578 (corynebacterial kidney disease in rainbow trout)
(4): 571 (re redmouth disease outbreak in rainbow trout)
T 352 (spatial & seasonal distribution of coliforms in Bedford Basin, N.S.)
S 1733 (*Vibrio anguillarum* isolated from Atl. cod nasal abcess)
1786 (biomass & respiration rate estimates in NW Atl.)
1844 (re quality of freshwater fishery products)
1819; 1849 (amines of bacteriophage of *Pseudomonas acidovorans*)
A 274 (review of book on microbial biogeochemistry)

Bacteriophage
S 1819 (an unusual pyrimidine from the deoxyribonucleic acid of a)
1849 (polyamines of *Pseudomonas acidovorans* bacteriophage)

Bagre marinus (*see* Catfish, gafftopsail)

Bairdiella chrysura (*see* Perch, silver)

Baker, Edgar George
J 30(8): 1255 (Pac. halibut sexual ripening in captivity)

Baker, Spencer Robert
J 30(4): 549 (spontaneous nephroblastoma in a rainbow trout)

Balaenoptera acutorostrata (*see* Whale, minke)
bonaerensis (*see* Whale, minke)
borealis (*see* Whale, sei)
edeni (*see* Whale, Bryde's)
musculus (*see* Whale, blue)
physalus (*see* Whale, fin)

Balanus (*see* Cirripedia)

Ball, Ian Raymond
J 30(3): 389 (new marine triclad turbellarian species, from P.E.I.) 3 464 (first N America record of marine triclad turbellarian *Uteriporus vulgaris*)

Bams, Robert Abraham
T 364; 405 (evaluation of gravel incubators for pink salmon fry & adult stages, Tsolum R., B.C.)

Banff National Park, Alta.
B 184: 10 (tropical aquarium fishes established in thermal basin)

Banks Island, western Canadian arctic (*see* Victoria Island)

Baptiste Lake, N.W.T.
T 384 (physical & chemical features re biological cropping investigations)

Barans, Charles Anthony
J 30(11): 1697 (temperatures selected seasonally by 4 W L. Erie fishes)

Barber, Richard Trumpeter
J 30(9): 1287 (metallic contaminants in bluefish & blue antimora muscle re total body weights)

Barbour, Clayton Isaac
T 339 (length, age, & weight of SW Nfld. winter herring, 1965–66 to 1970–71)

Barica, Jan
J 30(9): 1389 (ammonia probe for electrometric determination of total NH_3?N in fish tanks)
(10): 1589 (silver-sulfide electrode for standardizing & determining sulfide in water)
S 1853 (groundwater pollution)

Barnacles (*see* Cirripedia)

Barraclough, William Edward
S 1799 (use of nutrients in enrichment of sockeye salmon nursery lakes, B.C.)

Barracudina, white (*Notolepis rissoi*)
J 30(1): 134 (lengths of 29 specimens taken in or off Gulf of Maine)

Bas, C.
J 30(12,2):2301(S) (changes in E Central Atl. fisheries)

Bass, black sea (*Centropristis striata*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, SE coast USA)

Bass, largemouth (*Micropterus salmoides*)
B 184: 734 (full description, etc., in Canada)

Bass, northern rock (*Ambloplites rupestris rupestris*)
J 30(8): 1141 (accommodative lens movements re feeding behavior)

Bass, rock (*Ambloplites rupestris*)
J 30(6): 761 (diel habits in Ont. lakes)
(8): 1155 (host of new trematode species, *Lyrodiscus rupestris*)
B 184: 703 (full description, etc., in Canada)

Bass, smallmouth (*Micropterus dolomieui*)
J 30(2): 195 (nucleic acids ratio as measure of long-term growth in populations)
(6): 761 (diel habits in Ont. lakes)
(8): 1226 (growth temperature requirements & lower lethal temperatures, for young)
(11): 1697 (temperatures selected seasonally in W L. Erie)
B 184: 728 (full description, etc., in Canada)

Bass, striped (*Morone saxatilis*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, SE coast USA)
B 184: 693 (full description, etc., in Canada)

Bass, white (*Morone chrysops*)
J 30(11): 1697 (temperatures selected seasonally in W L. Erie)
B 184: 689 (full description, etc., in Canada)

Bateson, David Webster
J 30(12,1):1901 (hybridization of sunfishes)

Bathylagus sp.
J 30(2): 293 (high mercury concentration in, off California)

Bathylagus bericoides (no common name as yet; a mesopelagic Salmoniformes fish)
J 30(1): 134 (length of a specimen taken in or off Gulf of Maine)

Bathyraja
J 30(11): 1729 (assignment of deepwater skate, *Raja richardsoni*, to *B. richardsoni*)

Bawden, Carole Anne
J 30(7): 1014 (mercury & other metals in benthic animals on Fraser R. mudflats)

Bayagbona, E. O.
J 30(12,2):2264 (management & development of E Central Atl. fisheries)

Beamish, Frederick William Henry
J 30(1): 7 (quantitative seasonal grazing of lamprey larvae on algae)
(5): 601 (sea lamprey predation selectivity re freshwater fishes)
(9): 1367 (sea lamprey oxygen consumption re temperature & adult body weight)

Beamish, Peter Charles
S 1851 (short pulse length audio frequency sounds re minke whale echolocation)

Beamish, Richard James
J 30(4): 587 (trapnet for large & small fishes from varying depths)
(5): 607 (age & growth of white sucker populations re maturity size)
S 1736 (lethal pH for white suckers in waters subject to atmospheric SO_2 fallout)

Beatty, Stanley Albert
J 30(9): 1361 (obituary of Ernest Hess)

Beck, Brian
S 1810 (instantaneous explosive branding device for seals)

Bedford Basin, N.S.

J 30(3): 333 (*Sagitta elegans* chaetognath annual life cycle & production)
T 352 (spatial & seasonal distribution of coliform bacteria in)
S 1779 (phytoplankton nutrients & flushing)

Beetles (*see* Coleoptera)

Beeton, Alfred Merle
J 30(12,1): 1841 (degradation of TFM lampricide by bottom sediments)

Behavior (The following references are only indicative of the scope of this complex subject. *See also* Activity; Aggression; Avoidance; Currents, reactions to; Diel habits; Environment; Feed; Habitat; Light, reactions to; Locomotion; Maturity; Olfactory perception and response; Predation; Pollution; Reproduction; Salinity, reactions to; Schools; Season; Sound, reaction to; Spawning; Swimming; Temperature; and other cognate headings)
J 30(5): 651 (of young Atl. salmon exposed to organophosphate insecticide)
(6): 725 (locomotor, of goldfish, re temperature & copper ions interaction)
(8): 1161 (interactions of spottail shiners, yellow perch, & northern pike)
(9): 1349 (*Homarus gammarus* lobster larvae re hydrostatic pressure & illumination changes)
(10): 1581 (apparatus for simulating motion of animals through geomagnetic field)
(11): 1740; (12,1): 1875 (illumination effects on trout)
B 181 (ringed seal in E Canadian arctic)
T 389 (interrelation among individuals in a fish school)
S 1795 (re fishes chemoreception & physiology)

Bell, Gordon Russell
J 30(10): 1578 (first record of bacterial kidney disease in apparently wild salmonid in B.C.)

"Belly-burn"
A 264 (of salmon as result of improper handling before canning)

Beluga (*see* Whale, white)

Benthos (*see also* Epibenthos; *also* types of benthos)
J 30(4): 493 (macrobenthic ecology of sawdust-bearing substrate in Penobscot R. estuary, Maine)
(9): 1317 (coupling carbon flow through some benthic communities)
T 354 (sorting by flotation media)
387 (zoobenthos response to addition of vegetable material to stream substrates)
385 (macroinvertebrate & polluting detritus, Howe Sound, B.C.)
S 1792 (multivariant analysis for identifying functional components, St. Margaret's Bay, N.S.)
1793 (re productivity & energy flow, R. Thames, Eng.)
1809 (distribution of mortality from elementary phosphorus pollution of Long Harbour of Placentia Bay, Nfld.)
1816 (kraft mill effluent effects on marine, in a N.S. harbor)

Benthosema glaciale (*see* Lanternfish, glacier)

Bergman, Harold Lee
J 30(9): 1293 (methylmercuric chloride vs. mercuric chloride uptake rate by rainbow trout principally through gills)

Bernard, Frank Rheinhold
T 400 (red sea urchin resources, B.C.)
S 1759 (description & key of living Brachiopoda of B.C.)

Berrill, Michael
J 30(2): 285 (tunnel digging in mud by newly settled lobsters)

Berst, Alfred Hewitt
J 30(4): 579 (parental age re splake progeny survival)

Bibliographies
B 180: 677 (re B.C. marine fishes)
184: 11 (important publications on Canadian fish fauna), 75, etc. (suggested further reading), 861 (specimens used for species illustrations), 869 (references, re Canadian freshwater fishes)
T 368 (of over 1800 titles referring to smelt family (Osmeridae), 1553–1972)
S 1845 (NE USA Oligochaeta)

Bibor, Viviane
J 30(9): 1395(F) ($Na^{125}I$ metabolism re yellow perch thyroid function)

Bicarbonates (*see also* Carbonates)
J 30(12,1): 1882 (changes in periphytic algae after additions of, to a small stream)

Bicknell, Leonard H.
S 1731 (purification & properties of chum salmon testes deoxyribonuclease)

Bidgood, Bryan Frederick
J 30(11): 1683 (divergent growth in lake whitefish populations in 2 Alta. lakes)

Biely, Jacob
S 1734 (dogfish meal as poultry ration supplement)

Bigeye (*Priacanthus arenatus*)
J 30(12,1): 1911 (new to Canadian Atl.)

Bile
J 30(9): 1301 (biliary excretion of introduced dye by rainbow trout)

Bilinsky, Edward

J 30(10): 1553 ($CdCl_2$ & $CuCl_2$ effects on lactate oxidation by rainbow trout gills)

Bill Lake, Que.
J 30(9): 1398 (American eel competition & predation effect on brook trout population)

Bilton, Herbert Thomas
J 30(1): 1 (starvation & subsequent feeding effects on sockeye salmon fry survival & growth)
T 371 (B.C. pink salmon mean length &/or weight in recent years' catches & escapements)

Bioassay (*see also* Biosynthesis; Carbon headings; Photosynthesis)
J 30(2): 329 (short reproductive period makes flagfish advantageous for rapid chronic toxicity bioassays)
(10): 1565 (for toxicity of kraft mill effluent to Pac. salmon)

Bioenergetics (*see also* Calorific value; Metabolism; Photosynthesis; Respiration; Stress; Swimming)
J 30(8): 1179 (energy budget of ninespine stickleback in an Alaskan arctic lake)
(11): 1717 (energy flow analysis re production in unexploited flatfish population)
(11): 1755 (energy expenditure estimate of rainbow trout in small mountain stream)
(12,I): 1799 (of sockeye salmon during sustained swimming performance)
S 1790 (green sea urchin, St. Margaret's Bay, N.S.)
1793 (energy flow & productivity of organisms in R. Thames, Eng.)

Biogeography (*see* Distribution; Range; Species, new records or range extensions)

Biology, fisheries (*see also* the many other topics in this index)
B 183 (Russian-English dictionary for students of)

Biomass
J 30(3): 333 (re *Sagitta elegans* chaetognath annual production)
(7): 939 (delay-differential equation models for fisheries, yield from)
(7): 998 (simple dynamic pool vs. surplus production models for fishery yield from)
T 337 (of phytoplankton in FRB Experimental Lakes Area, NW Ont.)
S 1786 (microbial, phytoplankton, etc., estimates in NW Atl. Ocean)
1793 (re productivity & energy flow, R. Thames, Eng.)

Biosynthesis (*see also* Bioassays; Enzymes; Photosynthesis; Productivity, primary)
J 30(2): 309 (^{14}C vs. dissolved oxygen methods for measuring benthic microalgal primary production)

Biota
J 30(1): 83 (bunker C oil spill effects on, Chedabucto Bay, N.S.)

Biphenyls (*see* Polychlorinated biphenyls (PCB))

Birds (*see also* Ducks; Eggs; Murres; Pigeon; Poultry)
S 1843 (observations of 48 species, W Victoria Is., Canadian arctic, 1971)

Bisalputra, Thana
S 1818 (improved filtration & concentration techniques for microalgae electron microscopy)

Bishop, C. A.
CJG 19 (Canadian Atl. sea urchin fishery)

Bishop, Doris Mae
J 30(2): 157 (seasonal effect on salt-extractable protein, & stability during frozen storage, in Atl. cod muscle)

Black, Robert
J 30(9): 1385 (mussel & periwinkle shell growth rate as indicator of unexpected pollution incidents)

Blackcod (*see* Sablefish)

Blackett, Roger Fisk
J 30(4): 543 (fecundity of resident & anadromous Dolly Varden trout in SE Alaska)

Blackfish, Alaska (*Dallia pectoralis*)
B 184: 338 (full description, etc., in Canada)

Blackflies (*see* Simuliidae)

Blanc, Jean-Marie
J 30(1): 137 (genetic analysis of steelhead trout hatching time)

Blanton, Jackson Orin
J 30(7): 917 (thermal structure comparisons of several Okanagan Valley lakes, B.C.)

Bleak (*Alburnus alburnus*)
S 1793 (re productivity & energy flow, R. Thames, Eng.)

Blepharoceridae (net-winged midges)
CNG 95 (description)

Bligh, Emerson Graham
MSP 19 (brochure on activities of FRB Halifax, N.S., laboratory)
S 1844 (specific problems in quality assessment of freshwater fish products)

Bloater (*Coregonus hoyi*)
B 184: 264 (full description, etc., in Canada)

Blood; Blood constituents (*see also* Heart; Plasma; Respiration; Serum; for hematopoietic virus necrosis, *see* Viruses)
J 30(3): 369 (sublethal effects of bleached pulpmill effluent on sockeye salmon)
(3): 395 (effect of long exposure to kraft pulpmill effluent on coho salmon)
(3): 467 (Atl. salmon hematocrit & hemoglobin changes from furunculosis)
(6): 831 (hemoglobin increase in young steelhead trout & coho salmon from sublethal heat stress)
(8): 1131 (binding of triiodothyronine & thyroxine to brook trout plasma proteins)
(9): 1293 (erythrocyte uptake of mercurials by rainbow trout)
(11): 1705 (trout & carp cardiovascular activity during recovery from anesthesia & surgery)
(11): 1736 (erythrocyte sizes of some diploid & triploid *Poeciliopsis* fishes)
S 1805; 1806 (hematology of fishes affected by elemental phosphorus pollution of Placentia Bay, Nfld.)
1848 (partial characterization of a natural agglutinin in lobster hemolymph)

Bloodworm (*Glycera dibranchiata*) (a polychaete)
J 30(2): 161 (reproduction, in a Maine estuary)

Bloodworm (hemoglobin-rich insect larva)
CNG 95 (description)

Blubber
J 30(3): 471 (mercury & pesticide residues in Gulf of Maine & Bay of Fundy harbour seal)
(5): 595 (organochlorine residue levels variation, re Gulf of St. Lawrence harp seal age)
(6): 843 (mercury uptake in Atl. seals)
(8): 1053 (residues of DDT & its metabolites in Canadian Atl. coast harp seals)
(11): 1733 (DDT & DDE residues in beluga whale, Mackenzie R. delta, N.W.T.)
T 344 (dibutyl phthalate environmental pollutant found in Atl. harbour seal)

Bluefish (*Pomatomus saltatrix*)
J 30(2): 275 (mercury content of muscle, SE coast USA)
(9): 1287 (Mn, Fe, Cu, Zn, & Hg concentrations in muscle re total body weight)

Bluegill (*Lepomis macrochirus*)
J 30(2): 201 (simulated meal size effect on gastric acid & pepsin secretory rates)
(2): 317 (re feed selection by northern pike)
(2): 323 (sodium nitrilotriacetate effect on gill condition & survival)
(8): 1141 (lens accommodative movements re feeding behavior)
(12,I): 1811 (Captan fungicide toxicity to)
(12,I): 1901 (re sunfishes hybridization)
B 184: 719 (full description, etc., in Canada)

Boat (*see* Vessels)

Boerema, Luitje Kornelis
J 30(12,2): 2226 (stock assessment of Peruvian anchovy fishery)

Bogdanov, Alexander Sergeevich
J 30(12,2): 2436 (fishery regulations in ICNAF area)

Bonavista Bay, Newfoundland
J 30(12,I): 1905 (lobster feed, feeding, & condition through seasonal cycle)

Bone (*see also* Jaw)
J 30(6): 841 (molybdenum uptake in rainbow trout & kokanee)

Bonnethead (*Sphyrna tiburo*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle & some organs, SE coast USA)

Book reviews (*see* Reviews of books)

Boreogadus saida (*see* Cod, Arctic)

Bose, Robert John
T 369 (safety modification of vacuum closer canning machine)
S 1819 (an unusual pyrimidine from a bacteriophage deoxyribonucleic acid)
1849 (polyamines of *Pseudomonas acidovorans*)

Bothriocephalus (*see* Cestoda)

Bothwell, Max Lewis
J 30(12,I): 1841 (degradation of TFM lampricide by bottom sediments)

Botta, Joseph Richard
J 30(1): 63, 71, 79 (effects of brine- & plate-freezing at sea on Pac. halibut & chinook salmon quality)

Botulism (*see Clostridium botulinum*)

Boudreault, François-Robert
J 30(2): 320(F) (objective analysis of seasonal thermocline)

Bounty
A 291 (still in force for certain Canadian shore aquatic mammals)

Bourget, Edwin
J 30(7): 867(F) (benthic epifauna, seasonal settlement in St. Lawrence R. estuary)

Bourne, Neil
S 1738 (temperature effect on horse clam larval development)
1739 (horse clam breeding & growth in S B.C.)
A 279 (molluscan aquaculture in B.C.)

Bowen, Richard Hugh

J 30(5): 683 (first Canadian record of stoneroller & blackstripe topminnow)
(9): 1379 (first Canadian records of silver shiner)

Bowfin (*Amia calva*)
B 184: 112 (full description, etc., in Canada)

Brachiopoda
T 385 (benthic, near shoreline of Howe Sound, B.C., re pollution)
S 1759 (description of 11 living species in B.C.; key)

Brachyphallus (*see* Trematoda)

Brachyura (*see also* Crab; Crabs)
S 1838 (description & distribution of various, SE Vancouver Is. (as of 1930))

Brain
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of 3 inshore fish species, SE coast USA)
(3): 363 (copper-induced hemorrhage in mummichog & Atl. silverside)
(3): 471 (mercury & pesticide residues in cerebrum of Bay of Fundy & Gulf of Maine harbour seals)
(6): 841 (molybdenum uptake in rainbow trout & kokanee)
(8): 1053 (DDT & its metabolites in Canadian Atl. coast harp seals)
S 1757; 1777 (goldfish cerebellum electrical responses)
1795 (re fishes chemoreception & morphology)

Branding (*see* Marking)

Braun, Heinz Egon
J 30(8): 1053 (DDT & its metabolites in Canadian Atl. coast harp seals)

Breast
S 1745; 1801 (mercury content of muscle in central Canada ducks)

Breeding (*see* Culture; Hatchery; Reproduction; Spawning)

Breeding cycle (*see* Reproduction)

Brett, John Roland
J 30(3): 379 (sockeye salmon metabolic rates & critical swimming speeds re size & temperature)
(4): 499 (sodium pentachlorophenate effects on underyearling sockeye)
(8): 1191 (temperature & feeding regime effect on sockeye fry growth rate & size)
(12,1): 1799 (energy expenditure of sockeye during sustained swimming)

Brill (*see* Sole, petrale)

Brinkhurst, Ralph Owen
J 30(5): 617 (interspecific interactions in tubificid oligochaete respiration)
S 1845 (Oligochaeta of NE USA)

British Columbia (*see also* Alberni Inlet; Babine Lake; Fraser River; Georgia, Strait of; Oceanography, northeast Pacific coastal; *also* names of other localities, lakes, rivers, etc.)
J 30(2): 249 (comparison of inshore salmon fishery strategy with that of Cornish oyster fishery & Nfld. offshore fishery)
(6): 729 (descriptions & key to 10 *Lepeophtheirus* caligoid parasites of fishes)
(10): 1578 (first record of bacterial kidney disease in wild salmonid (rainbow trout))
B 180 (740-page illustrated descriptions of 325 species of marine fishes in & off waters of, with data on recognition, morphology, life history, distribution, utilization, etc., also gazetteer, glossary, & references)
184 (freshwater fishes of)
CNG 94 (changing oceanographic effects in coastal waters re herring populations)
T 338 (1971 groundfish fishery & some aspects of related fisheries)
355–358 (herring populations, 1950–51 to 1969–70)
381 (changing physical factors in coast waters re herring population sizes)
399 (computer programs for herring population analysis from catch, sampling, & spawn deposition data)
400 (preliminary investigation of red sea urchin as fishery resource)
S 1738; 1739 (growth, etc. of horse clam in S)
A 279 (molluscan aquaculture)
282 (pollution effects on shores, environment, & marine life)

Brittle star
J 30(2): 293 (mercury concentration in *Ophiophalis* sp. off California)

Britton, Robert Howard
S 1793 (productivity & energy flow, R. Thames, Eng.)

Brockerhoff, Hans
S 1796 (isolation & properties of lobster digestive amylase)
1835 (model of interfacial orientation re action of pancreatic lipase)

Brocksen, Robert Wilbur
J 30(3): 443 (gut nematode effects on young rainbow trout consumption & growth)

Brodie, Paul Frederick
J 30(11): 1733 (DDT residues in Mackenzie R. Delta beluga whales, N.W.T.)
S 1824 (significance of accessory corpora lutea in Odontoceta)

Broecker, Wallace S.
J 30(10): 1475 (gas-exchange rates as determined by ^{222}radon method in a small lake)

S 1773 (CO_2 role in maintaining phytoplankton standing crops)

Brooke, Larry Tad
J 30(6): 799 (temperature effects on lake herring embryonic development)

Brosme brosme (*see* Cusk)

Brown, Seward Ralph
J 30(3): 345 (integrated quantitative determination of planktonic & sedimentary chlorophylls)

Brown, Thomas James
J 30(2): 313 (submersible spectroradiometer & data acquisition system)

Brungs, William Aloysius
J 30(4): 583 (acute & long-term copper accumulation in brown bullhead tissues)

Brunskill, Gregg John
S 1744 (flux rate of major ions from lake sediments into lake water)
1773 (CO_2 role in maintaining phytoplankton standing crops)

Bryozoa
J 30(7): 867(F) (seasonal settling of 2 species, St. Lawrence R. estuary)

Buccal funnel (*see also* Mouth)
B 184: 22 (diagrams of, for 9 Canadian lamprey species)

Buchwald, David Glen
T 304 (life history & distribution of Arctic lamprey in Great Slave L. region, N.W.T.)

Buck Lake, Alta.
J 30(11): 1683 (divergent growth in lake whitefish populations)

Buffalo, bigmouth (a fish) (*Ictiobus cyprinellus*)
B 184: 557 (full description, etc., in Canada)

Buffalo Pound Lake, Sask.
J 30(5): 681 (columnaris disease outbreak in white suckers)

Bufflehead (*see* Ducks)

Bugs (true) (*see* Hemiptera)

Bulbodacnitis ampullastoma (*see* Nematoda)

Bulleye (*Cookeolus boops*)
J 30(12,1): 1911 (new to Canadian Atl.)

Bullhead, black (*Ictalurus melas*)
B 184: 591 (full description, etc., in Canada)

Bullhead, brown (*Ictalurus nebulosus*)
J 30(4): 583 (acute & long-term accumulation of copper in tissues)
(5): 601 (size re predation by sea lamprey)
(11): 1641 (cell microculture for channel catfish virus & antibody quantitation)
B 184: 598 (full description, etc., in Canada)

Bullhead, northern black (*Ictalurus melas melas*)
J 30(8): 1141 (accommodative lens movements re feeding behavior)

Bullhead, yellow (*Ictalurus natalis*)
J 30(8): 1243 (decline of olfactory & gustatory responses to α-amino acids, re time after recapture)
B 184: 595 (full description, etc., in Canada)

Burbot (*Lota lota*) (ling)
J 30(5): 601 (size re predation by sea lamprey)
B 184: 641 (full description, etc., in Canada)
T 390 (catches during experimental purse seining, Babine L., B.C., 1972)

Burgess, Geoffrey Harold Orchard
J 30(12,2): 2170 (alternative uses of fish)

Burke, Margaret
T 360 (annulus formation in Pac. herring scales)

Burton, William
J 30(2): 287 (improved Ekman-type grab)

Burzawa-Gerard, Elizabeth
S 1784 (gonadotropin activities on goldfish ovary adenyl cyclase)

Buttkus, Hans
S 1762 (reaction of malonaldehyde or oxidized linolenic acid with sulfhydryl compounds)

By-products (*see* Fishmeal; Fish protein concentrate; Oils and fats; *also* types of processing)

Byrne, Charles
J 30(7): 913 (establishment of cultured fibroblast-like cell line from Atl. salmon parr tissues, and its susceptibility to 3 viruses)

Byssus
S 1769 (progressive loss of attachment, re size of sea scallop)

C

Caddisflies (*see* Trichoptera)

Caddy, John Frederick
J 30(2): 173 (underwater observations on tracks of dredges & trawls, re effects on sea scallop beds)

S 1769 (progressive loss of byssus attachment with increasing size of sea scallop)

Cadmium derivatives
J 30(2): 275 (content of various fishes inshore & offshore SE coast of USA)
(4): 560 (influence of fish aminolevulinate dehydrase activity)
(6): 846 (uptake by fiddler crab re temperature & salinity stress)
(7): 1014 (in ghost shrimp, Fraser R. mudflats, B.C.)
(10): 1553 (chloride effects on lactate oxidation by rainbow trout gills)
S 1814 (chloride-induced testicular injury & androgen synthesis alteration in brook trout)

Calanoida
J 30(6): 811 (life history aspects of *Calanus plumchrus* in Strait of Georgia)
(10): 1597 (redescription of *Gaetanus intermedius* from type locality)

Calanus (*see* Calanoida)

Calaprice, John Robert
S 1830 (chemical element content of duck feathers re geographical origin)

Calcium derivatives
S 1744 (flux rate of Ca ion from lake sediments into lake water)
1830 (content of duck feathers re geographical origin)

Caldwell, David Keller
J 30(7): 1009 (age, growth, & maturity of Florida bottlenosed dolphin)

Caldwell, Melba Carstarphen
J 30(7): 1009 (age, growth, & maturity of Florida bottlenosed dolphin)

Calf (*see* Cattle)

Caligidae (*see also* Copepoda)
J 30(6): 729 (description & key of 10 *Lepeophtheirus* species (including a new species, *L. oblitus*) from B.C. fishes)
(12,1): 1793 (distribution of *Udonella caligorum* trematode on *Caligus elongatus*)
(12,1): 1892 (*Homoiotes palliata* taxonomic status vs. *Lepeophtheirus*)
S 1782 (description of male *Caligus chelifer*)

Caligoida (*see also* Caligidae; Copepoda; Lernaeopodidae)
J 30(7): 881 (comments on life cycles)
(11): 1655 (first record of *Ichthyocodium sarcotretis* hydroid parasitic on *Sphyrion lumpi*)
(12,1): 1892 (*Homoiotes palliata* found to be mixture of *Lepeophtheirus* species)

Caligus (*see* Caligidae)

Callianassa californiensis (*see* Shrimp, ghost)

Calorific value (*see also* Bioenergetics)
J 30(9): 1261 (areal & seasonal variations in American plaice feed)

Cameron, James Nicholas
J 30(8): 1179 (ninespine stickleback energy budget in an Alaskan arctic lake)

Campostoma anomalum (*see* Stoneroller)

Campbell, Blake Archibald
J 30(12,2): 2070 (Canada's license experience)

Campleman, G.
J 30(12,2): 2159 (transition from small- to large-scale fisheries industry)

Canada (*see also* Fisheries Research Board of Canada; *also* names of provinces and territories)
B 155(F) (French edition of Bulletin on Fishes of the Atlantic Coast of Canada)
165(F) (French edition of Bulletin 165 on Carp in Canada)
166(F) (French edition of Bulletin 166 on The Eel Fisheries of Eastern Canada)
180 (marine fishes of B.C. (325 species))
181 (ringed seal population dynamics in Canadian eastern arctic)
184 (980-page illustrated description of 181 species of freshwater fishes of Canada, with data on color, systematics, distribution, biology, relation to man, nomenclature, etc.)
S 1748 (marine science as challenge to chemists)
1749 (marine science & technology in)
A 289 (biological considerations of fisheries in coastal zones)
294 (ringed seal management research & utilization by E arctic Eskimos)

Cancer irroratus (*see* Crab, rock (Atlantic))
magister (*see* Crab, Dungeness)
productus (*see* Crab, rock (Pacific))

Canning; Canned products
J 30(8): 1235 (to mask or neutralize rainbow trout muddy flavor)
T 343; 363 (treatment of cannery effluent)
369 (safety device for hand-operated vacuum closer equipment)
S 1821; 1822 (quality of sockeye salmon, from fish stored chilled or partly frozen)
A 264 (influence of delayed chilling of salmon during transportation to cannery)

Canning River, Alaska
J 30(8): 1215 (life history of 2 isolated Arctic char populations in spring-fed tributaries)

Canvasback (*see* Ducks)

Cape Breton Island, N.S.
J 30(1): 121 (winter surface currents around)

Capel, Michael John
J 30(10): 1415 (further results of PO_4 & NO_3 enrichment on eutrophication of a lake in FRB Experimental Lakes Area, NW Ont.)

Capelin (*Mallotus villosus*) (*see also* B 180: 141)
J 30(1): 17 (predation by NW Atl. harp seals)
T 368 (bibliography)

Captan (*see* Fungicides)

Carapace (*see also* Molting)
J 30(11): 1738 (microfungal encrustation on snow crab)

Carassius auratus (*see* Goldfish)

Carbohydrase (*see* Enzymes; Style, crystalline)

Carbohydrates (*see* Alditol; Glucans; Glucose; Glycogen; Hexose; Starch; Sucrose)

Carbon (in biochemical processes) (Applications of radioactive ^{14}C in such studies are too numerous to index separately; some are included in the following references and under Biosynthesis; Carbon dioxide; Carbonates; Limnology; Photosynthesis; Productivity, primary; Radiometer; and other cognate headings)
J 30(9): 1317 (coupling carbon flow through pelagic & benthic communities)
(10): 1415, 1475, 1501, 1511, 1547 (role in primary production of FRB Experimental Lakes Area lakes, NW Ont.)
(10): 1441 (gas-chromatographic determination of inorganic & organic in fresh water & carbonates in sediments)
(10): 1447 (re numerical model for primary production in L. Michigan)
S 1786 (particulate organic re distribution & activity of microorganisms in ocean water)

Carbon dioxide (*see also* Biosynthesis; Carbon; Carbonates; Gas-exchange; Limnology; Photosynthesis; Phytoplankton; Productivity, primary; Respiration)
J 30(10): 1441 (syringe re gas-chromatographic determination in lake waters)
(10): 1475, 1491, 1501, 1511 (role of atmospheric-dissolved system in primary production of lakes of FRB Experimental Lakes Area)
S 1773 (atmospheric: role in maintaining phytoplankton standing crops)

Carbonates (*see also* Bicarbonates; Biosynthesis; Carbon; Carbon dioxide; Gas-exchange; Limnology; Photosynthesis; Productivity, primary)
J 30(10): 1441 (gas-chromatographic syringe re determination in lake sediments)
(10): 1475, 1501, 1511 (role in primary production of FRB Experimental Lakes Area lakes, NW Ont.)

Carcharhinus falciformis (*see* Shark, silky)
milberti (*see* Shark, sandbar)
obscurus (*see* Shark, dusky)

Carcinus maenas (*see* Crab, shore)

Cardiovascular system (*see* Blood; Gills; Heart)

Carline, Robert Frank
J 30(5): 623 (evaluation of method for estimating fish feed consumption rates)

Carp (*Cyprinus carpio*)
J 30(2): 195 (nucleic acids ratio as measure of long-term growth in populations)
(2): 317 (re feed selection by northern pike)
(5): 601 (size re predation by sea lamprey)
(8): 1195 (thermal effects of nuclear power plant discharge on)
(11): 1705 (functional activity during recovery from anesthesia & surgery)
B 165(F) (French edition of Bulletin on Carp in Canada)
184: 407 (full description, etc., in Canada)
S 1784 (gonadotropin stimulation of goldfish ovary adenyl cyclase)

Carpiodes cyprinus (*see* Quillback)

Carter, Neal Marshall
J 30(1–12,1): 2530 (subject–author index to (this present separate))
(12,2): 2516 (subject–author index to proceedings of FAO Technical Conference on Fishery Management & Development)
MSP 18 (index and list of titles, Fisheries Research Board of Canada & associated publications, 1965–72)

Casein
J 30(7): 1017 (liver changes in rainbow trout when fed)

Castell, Charles Howell
J 30(1): 91 (formaldehyde determination in fish muscle)
(2): 157 (seasonal effect on salt-extractable protein & stability during frozen storage, in Atl. cod muscle)
(8): 1205 (formaldehyde production from trimethylamine oxide in gadoid fishes, & its effect on salt-extractable proteins & denaturation in frozen fillets therefrom)
(8): 1246 (comparisons of amine & extractable protein changes in iced & frozen Atl. gadoid fillets)

Catabolism (*see also* Metabolism)
S 1823 (arginine role in *Aeromonas salmonicida*)

Catch effort; Catchability (*see also* Abundance; Catches; Fisheries)

J 30(2): 249 (comparison of fishing strategies in several fisheries)
(3): 409 (linear regressions for, in fisheries research data)

Catches (*see also* Catch effort; Fisheries; Yield; *also* names of aquatic animals contributing to commercial fisheries)
J 30(9): 1275 (re mechanisms thwarting maintenance of peak-period yields from stocks of Pac. salmons & other fishes)
(11): 1667 (L. Winnipeg whitefish, 1944–69)
(12,2): (*see* separate index in that issue for many data on world catches by countries, water masses, kinds of fish, etc.)
B 180 (of many species of B.C. marine fishes)
184 (of many species of Canadian freshwater fishes)
T 338; 398 (1971 & 1972 B.C. groundfish & related fisheries)
345 (during FRB experimental groundfish cruise off SW Vancouver Is., Sept. 1972)
353; 392 (size & age composition of Nfld. & Labrador commercial)
358 (age composition of B.C. herring, 1950–51 to 1969–70)
371 (mean length &/or weight of B.C. pink salmon catches & escapements in recent years)
390 (purse seine, of sockeye salmon, etc., Babine L., B.C., 1972)
399 (re computer programs for B.C. herring population analysis)
S 1825 (sei whales, NW Atl.)
1826 (fin whales, NW Atl.)

Catfish, channel (*Ictalurus punctatus*)
J 30(1): 116 (production of agglutinating antibodies in, against columnaris disease bacterial pathogen)
(4): 568 (temperature effect on mortality of fingerlings infected with virus)
(8): 1243 (decline of olfactory & gustatory responses to α-amino acids, re time after capture)
(10): 1604 (variance of fatty acids re diet)
(11): 1641 (herpesvirus & antibody quantitation with brown bullhead cultured cells)
(11): 1743 (uptake & release of endrin by fingerlings)
B 184: 604 (full description, etc., in Canada)

Catfish, gafftopsail (*Bagre marinus*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, SE coast USA)

Catfish, white (*Ictalurus catus*)
J 30(8): 1195 (thermal effects of nuclear power plant discharge on)
(8): 1243 (decline of olfactory & gustatory responses to α-amino acids, re time after capture)

Catostomus catostomus (*see* Sucker, longnose)
columbianus (*see* Sucker, bridgelip)
commersoni (*see* Sucker, white)
macrocheilus (*see* Sucker, largescale)
platyrhynchus (*see* Sucker, mountain)

Cattell, S. Allen
J 30(2): 215 (seasonal cycle of vitamin B_{12} & other nutrients in Strait of Georgia & Juan de Fuca Strait)

Cattle
S 1735 (milk, fishmeal, & soybean meal proteins as milk replacers in calf rations)

Cells (biological) (*see* Cytology)

Central America
A 284 (portable fish chilling units for artesanal fisheries (in Spanish & English))
285 (preservation of shrimp on trawlers (in Spanish & English))

Centrarchidae (*see* Sunfishes)

Centropristis striata (*see* Bass, black sea)

Cephalopoda (*see also* Squid)
J 30(1): 17 (role in NW Atl. harp seal feed)

Ceratium (*see* Photosynthesis)

Ceratopogonidae (biting midges; no-see-ums)
CNG 95 (description)

Ceratoscopelus maderensis (*see* Lanternfish, horned)
warmingil (*see* Lanternfishes)

Cereal (*see* Wheat)

Cerebellum (*see* Brain)

Cestoda
J 30(2): 291 (*Bothriocephalus scorpii* in northern sand lance intestine)
(7): 947 (*Eubothrium salvelini* infection effects on young sockeye salmon)
S 1832 (of NE Pac. ocean perch)

Cetacea (*see also* Dolphin; Porpoise; Whale)
J 30(8): 1111 (distribution & intraspecific variation in pigmentation patterns of NW Atl. odontocete)

Cetorhinus maximus (*see* Shark, basking)

Chaetognatha
J 30(2): 293 (mercury concentration in, off California)
(3): 333 (annual life cycle & production of *Sagitta elegans*, Bedford Basin, N.S.)

Chaoboridae (*see also* Diptera; Insects)
S 1753 (morphology, biology, ecology, & key to Palaearctic & Nearctic species)

Chapman, Douglas George

J 30(12,2):2419 (International whaling & N Pac. fur seal management)

Char, Arctic (*Salvelinus alpinus*)
J 30(6): 717 (respiration in Char L., Canadian high arctic)
(8): 1215 (life history of 2 isolated populations in spring-fed tributaries of Canning R., Alaska)
(10): 1586 (re postglacial colonization of Matamek R., Que.)
B 184: 201 (full description, etc., in Canada)

Char Lake, Cornwallis Island, Canadian Arctic
J 30(6): 717 (respiration of Arctic char in)

Chauliodus sloani (*see* Viperfish)

Chaulk, Raymond
J 30(6): 860 (first record of alewife & probable spawning, E Nfld.)
T 339 (length, age, & weight of SW Nfld. winter herring, 1965–66 to 1970–71)

Chedabucto Bay, N.S.
J 30(1): 83 (bunker C oil spill effects on intertidal & lagoonal biota)
S 1751 (characteristics of oil in spill, & effects on marine organisms)

Chelae (*see* Claws)

Chemoreceptor sensitivity (*see also* Flavor; Olfactory perception; Taste)
S 1795 (chemoreception in fish physiology)

Cheng, Joseph Yim-hung
J 30(3): 460 (simple collector for spot elution in thin-layer chromatography)
S 1818 (improved filtration & concentration techniques for microalgae electron microscopy)

Chicken (*see* Poultry)

Childs, Ernest Arthur
J 30(5): 706 (electrophoresis of fish proteins with a polyacrylamide gel)

Chilling (*see* Ice; Refrigeration; Sea water, refrigerated; Temperature, effects of)

Chilling, biological effects of (*see* Temperature, effects of)

Chilton, Doris Elizabeth
T 340 (length & age composition of Hecate Strait commercial rock sole, 1964–71)

Chionoecetes opilio (*see* Crab, snow)

Chironomidae (midges) (*see also* Diptera)
J 30(5): 665 (taxonomy & ecology of 3 *Monodiamesa* new species & keys to the genus)
CNG 95 (life cycle & guide to S Vancouver Is.)
T 342 (in bottom fauna survey of certain Okanagan lakes, B.C.)

Chiselmouth (*Acrocheilus alutaceus*)
B 184: 386 (full description, etc., in Canada)

Chittenden, Mark Eustace, Jr.
J 30(1): 105 (handling effects on American shad oxygen requirements)

Chitty Lake, N.W.T.
T 384 (physical & chemical features re biological cropping investigations)

Chlamydomonas (*see* Phytoflagellates)

Chlordane (*see* Hydrocarbons, chlorinated)

Chlorella ellipsoidea (*see* Photosynthesis)

Chlorides
J 30(1): 71 (concentration variance in Pac. halibut & chinook salmon flesh after brine- vs. plate-freezing the fish at sea)

Chlorinated water (*see* Hypochlorite)

Chlorinity (*see* note to Salinity heading; *also* Oceanography)

Chlorobiphenyls (*see* Polychlorinated biphenyls)

Chlorophylls (*see also* Algae; Biosynthesis; Photosynthesis; Phytoplankton; Plankton; Production, primary)
J 30(3): 345 (integrated quantitative method for determination in planktonic algae & sediments)
(3): 460 (simple apparatus for spot elution in thin-layer chromatography)
(7): 917 (chlorophyll-*a* production, several Okanagan Valley lakes, B.C.)
(10): 1415, 1511, 1537 (re biolimnology of FRB Experimental Lakes Area lakes)
T 351 (*a* distribution in lakes Ontario & Erie surface waters, 1970)

Chlorophyta (*see also* Algae; Photosynthesis)
J 30(1): 7 (quantitative seasonal grazing on, by American brook lamprey larvae & landlocked & anadromous sea lamprey larvae)
(12,1): 1825 (*Tetraselmis chui* in experimental feeding of young butter clams)
T 337 (of 35 lakes in FRB Experimental Lakes Area, NW Ont.)
S 1730 (nonspecific acid phosphatase in *Enteromorpha linza*)

Chondrococcus columnaris (bacteria) (*see* Columnaris disease)

Choy, Yuen-Min
S 1778 (chromatography & mass spectrometry of methylated alditol acetates)

Chromatography (Not all references to this widely used procedure are indexed; the following references are mainly to applications for separation of other than fatty acids and their esters. Additional references to gas–liquid chromatography (GLC) are under the heading Acids, fatty)
J 30(3): 460 (simple microscale vacuum collector for spot elution in thin-layer)
S 1747 (applications to fatty acids of marine lipids re geochemistry)
1787 (thin-layer, in analysis of wax esters)

Chromosomes
J 30(11): 1736 (sizes of karyotypes sizes of some *Poecilopsis* diploid & triploid fishes)

Chroomonas (*see* Cryptophyta)

Chrosomus eos (*see* Dace, northern redbelly)
neogaeus (*see* Dace, finescale)

Chrysophyta (*see* Diatoms)

Chua, Kian Eng
J 30(5): 617 (interspecific interactions in respiration of tubificid oligochaetes)

Chub, creek (*Semotilus atromaculatus*)
J 30(3): 357 (diet, time & place of spawning, & environments occupied, Mink R., Man.)
B 184: 507 (full description, etc., in Canada)

Chub, flathead (*Platygobio gracilis*) (*Hybopsis gracilis*)
B 184: 484 (full description, etc., in Canada

Chub, gravel (*Hybopsis x-punctata*)
B 184: 423 (full description, etc., in Canada)

Chub, hornyhead (*Nocomis biguttatus*)
B 184: 427 (full description, etc., in Canada)

Chub, lake (*Couesius plumbeus*)
J 30(6): 761 (diel habits in Ont. lakes)

Chub, peamouth (*see* Peamouth)

Chub, river (*Nocomis micropogon*)
B 184: 431 (full description, etc., in Canada)

Chub, silver (*Hybopsis storeriana*)
B 184: 420 (full description, etc., in Canada)

Chubsucker, lake (*Erimyzon sucetta*)
B 184: 551 (full description, etc., in Canada)

Cichlasoma nigrofasciatum (*see* Cichlid, convict)

Cichlid, convict (*Cichlasoma nigrofasciatum*)
B 184: 10 (established in thermal basin, Banff National Park, Alta.)

Cimino, Michael Cono
J 30(11): 1736 (karyotypes & erythrocyte sizes of some diploid & triploid *Poeciliopsis* fishes)

Circulation (of blood) (*see* Blood; Gills; Heart; Respiration)

Circulation (of waters) (*see also* Currents; Eutrophication; Limnology; Oceanography; Tides; Transport, mass)
B 182 (Gulf of St. Lawrence)
T 404 (variability of, St. Margaret's Bay, N.S.)

Cirripedia (barnacles)
J 30(7): 867(F) (seasonal settlement of *Balanus balanoides* & *B. crenatus* in St. Lawrence R. estuary)

Cisco (*Coregonus artedii*) (lake herring)
J 30(6): 761 (diel habits in Ont. lakes)
(6): 799 (temperature effects on embryonic development)
B 184: 236 (full description, etc., in Canada)

Cisco, Arctic (*Coregonus autumnalis*)
J 30(4): 554 (notes in Colville R., Alaska)
30(12,1): 1885 (gill raker counts, vs. Bering cisco)
B 184: 244 (full description, etc., in Canada)

Cisco, Bering (*Coregonus laurettae*)
J 30(12,1): 1885 (biology in Alaska)
B 184: 255 (full description, etc., in Canada)

Cisco, blackfin (*Coregonus nigripinnis*)
B 184: 256 (full description, etc., in Canada)

Cisco, deepwater (*Coregonus johannae*)
B 184: 250 (full description, etc., in Canada)

Cisco, least (*Coregonus sardinella*)
J 30(4): 554 (notes on Colville R., Alaska)
B 184: 262 (full description, etc., in Canada)

Cisco, longjaw (*Coregonus alpenae*)
B 184: 234 (full description, etc., in Canada)

Cisco, shortjaw (*Coregonus zenithicus*)
B 184: 265 (full description, etc., in Canada)

Cisco, shortnose (*Coregonus reighardi*)
B 184: 260 (full description, etc., in Canada)

Cladocera
T 401 (of St. Margaret's Bay, N.S., zooplankton, 1968–71)

Claggett, Freddie Gene
T 343; 366 (fish processing plant effluent clarification)
S 1734 (dogfish meal as poultry ration supplement)

Clam, Atlantic nut (*Nucula proxima*)
J 30(10): 1583 (adductor muscle gross structure)

Clam, Atlantic surf (*Spisula solidissima*)
J 30(10): 1583 (adductor muscle gross structure)

Clam, butter (*Saxidomus giganteus*)
J 30(12,1): 1825 (growth rates, nitrogen & carbohydrate contents of young, fed 3 species of algae)

Clam, horse (*Tresus capax*)
S 1738 (temperature effect on larval development)
1739 (breeding & growth in S B.C.)

Clam, mud (*Mya arenaria*)
J 30(7): 1014 (mercury & silver in, Fraser R. mudflats, B.C.)
S 1751 (bunker C oil in N.S.)

Clam, razor (Atlantic) (*Ensis directus*)
J 30(10): 1583 (adductor muscle gross structure)

Clam, softshell (Atlantic) (*Mya arenaria*)
J 30(1): 83 (mortality of, from fuel oil spill, Chedabucto Bay, N.S.)
(10): 1583 (adductor muscle gross structure)

Clams, freshwater
J 30(2): 167 (abundance of 13 *Pisidium* species, 7 *Sphaerium* species, & 2 other species, in an industrialized portion of Ottawa R.)

Clams (marine)
J 30(2): 181 (*Yoldia limatula* fatty acid composition)
(9): 1345 (*Macoma balthica* growth & mortality in Hudson Bay)
(10): 1583 (*Y. limatula* adductor muscle gross structure)

Clarification
T 343; 366 (chemical & flotation, of fish canning wastewater; analysis of recoverable sludge)

Clark, Colin
J 30(11): 1629 (Beverton–Holt model of commercial fishery: optimal dynamics)

Clark, Trevor Percival
A 283 (patented synthetic oyster cultch ("Cultchettes"))

Clasby, Robert Charles
J 30(6): 835 (in situ measurement of primary productivity in arctic sea ice algae)

Claws
J 30(9): 1370 (causes of loss in commercially caught lobsters)

Clay (*see* Sediments)

Clayton, James Wallace
J 30(2): 187 (genetics of a dehydrogenase isozyme in lake whitefish white muscle)
(7): 927 (malate dehydrogenase isozymes re taxonomic discrimination of walleye, sauger, & their suspected hybrids)

Clayton, John Robert, Jr.
J 30(7): 1003 (young pink & chum salmon feed preferences, Puget Sound, Wash.)

Climate (*see also* Storms; Temperature; Wind effects)
J 30(9): 1363 (re probable cause of 1972 red tide in Gulf of Maine)
B 182 (Gulf of St. Lawrence)
S 1837 (changes in the NW Atl. marine subarctic)

Clinocardium ciliatum (*see* Cockle, Iceland)

Clinocottus acuticeps (*see* Sculpin, sharpnose)
globiceps (*see* Sculpin, mosshead)

Clinostomus elongatus (*see* Dace, redside)

Clione (*see* Pteropoda)

Clostridium botulinum (causative agent of botulism)
J 30(5): 631 (control in cold-smoked salmon (review))
(11): 1760 (inability to detect spores in fish protein concentrate)
S 1804 (an intracellular α-D-glucan from)

Clupea harengus harengus (*see* Herring, Atlantic)
harengus pallasi (*see* Herring, Pacific)

Cnidaria (*see also* Coelenterata)
J 30(7): 867(F) (seasonal settling, St. Lawrence R. estuary)
T 385 (benthic, near shoreline of Howe Sound, B.C., re pollution)

Coad, Brian William
J 30(10): 1586 (fishes postglacial colonization of Matamek R., Que.)

Cobalt derivatives
J 30(7): 1014 (in organisms on Fraser River mudflats, B.C.)

Coble, Daniel W.
J 30(2): 317 (prey appearance & predatory satiation, effect on northern pike feed selection)

Coburn, Arthur Stephen
T 348; 372 (trapping & marking sockeye salmon fry, Babine L., B.C.)

Cockle, Iceland (*Clinocardium ciliatum*)
J 30(10): 1583 (adductor muscle gross structure)

Cod, Arctic (*Boreogadus saida*) (polar cod)
J 30(1): 17 (role in NW Atl. harp seal feed)

Cod, Atlantic (*Gadus morhua*)
J 30(1): 17 (predation by NW Atl. harp seals)
(1): 91 (formaldehyde formation in muscle)
(2): 157 (seasonal effect on muscle salt-extractable protein & stability during frozen storage)

(8): 1205 (formaldehyde formation from trimethylamine oxide in, & its effect on salt-extractable muscle proteins & denaturation of frozen fillets therefrom)
(8): 1246 (trimethylamine, dimethylamine, & extractable protein changes in iced & frozen fillets)
T 361 (alimentary tract morphology re feed habits)
402 (re fish assemblages)
S 1733 (*Vibrio anguillarum* isolated from nasal abcess)
1758 (testicular tissue malic enzymes)
1805 (elemental phosphorus effect on blood)
1847 (new technical research on quality preservation)

Cod, black (*see* Sablefish)

Cod, Pacific (*Gadus macrocephalus*)
T 338 (B.C. landings 1961–71 & additional 1971 data)
398 (1972 B.C. commercial fishery catch & effort statistics)

Cod, polar (*see* Cod, Arctic)

Coelenterata (*see also* Cnidaria; Jellyfishes)
J 30(4): 551 (*Aglantha digitale* diel migration & breeding cycle, Saanich Inlet, B.C.)
(8): 1105 (behavior in salinity discontinuity layers)

Colby, Peter James
J 30(6): 799 (temperature effects on lake herring embryonic development)

Cold storage (*see* Freezing; Refrigeration)

Cole, Charles Franklin
J 30(12, I): 1894 (DDT & dieldrin effects on winter flounder egg development)

Colebrook, Michael
S 1754 (instability of ocean populations)

Coleoptera (beetles)
CNG 95 (life cycle & guide to S Vancouver Is.)
T 387 (vegetable additives to stream gravel, as feed for)

Colgan, Patrick
J 30(6): 853 (woody debris role in pumpkinseed nest site selection)

Coliform bacteria (*see also* Bacteria)
T 352 (spatial & seasonal distribution in Bedford Basin, N.S.)

Collecting
J 30(1): 128 (modified stake net, for migrating Atl. salmon smolts)
CNG 95 (aquatic insects)

Colonization
J 30(10): 1586 (postglacial, of Matamek R., Que., by fishes)

Color (*see also* Pigments)
J 30(1): 71 (of Pac. halibut & chinook salmon flesh after brine- vs. plate-freezing of the fish at sea)
(2): 229 (rainbow trout choice of colors of feed items)
(2): 317 (of goldfish not significant to northern pike feed selection)
(6): 761 (changes of skin, of Ont. lake fishes under various conditions)
(8): 1065 (change, in white whale, W Hudson Bay)
(8): 1111 (NW Atl. odontocete Cetacea)
B 180 (325 species of B.C. marine fishes)
184 (181 species of Canadian freshwater fishes)
S 1775; 1776 (properties of silvery layer of salmon & herring scales & skin)

Columnaris disease (of fish, caused by *Chondrococcus columnaris* bacteria)
J 30(1): 116 (production of agglutinating antibodies against, in channel catfish)
(5): 681 (outbreak in white suckers of a Sask. lake)

Colville River, Alaska
J 30(4): 554 (notes on whitefishes)

Communication
J 30(6): 775 (chemical, among lobsters)
B 183 (Russian–English dictionary for students of fisheries & aquatic biology)
S 1756 (dissemination of research results)

Communities (*see also* Association)
J 30(9): 1317 (coupling carbon flow through pelagic & benthic)
T 337 (phytoplankton species composition & distribution in FRB Experimental Lakes Area, NW Ont.)
S 1816 (kraft mill effluent effects on N.S. marine benthos)

Composition, chemical (*see also* Acids, amino; Acids, fatty; Analysis methods (chemical); Mineral constituents; Oceanography; Oils and fats; Pollution; Proteins; *also* names of chemical elements)
J 30(4): 519, (7): 917 (Okanagan Valley lakes, B.C.)
(12, I): 1799 (sockeye salmon, re bioenergetics)
(12, I): 1825 (young butter clams)
B 182 (Gulf of St. Lawrence waters & sediments)
T 342 (Okanagan Valley lakes)
365 (fat & water content of Nfld. herring)
S 1734 (dogfish meals)
1751 (petroleum oils)

Compressibility
S 1815 (sea salt effects on seawater solutions)

Computer programming (*see also* Mathematical treatment of data)

J 30(9): 1383 (sample sizes to determine disease incidence in fish populations)
T 367 (3 programs for fish population dynamics)
376 (integral primary production in vertically stratified waterbodies)
399 (B.C. herring population analysis from catch, sampling, & spawn deposition data)
403 (for processing data of suspended material collected by Coulter Counter)

Condition (physiological)
J 30(12,1): 1905 (re feed & feeding of Bonavista Bay lobsters, Nfld.)
T 365 (Nfld. herring fat & water content re various biological factors)
377 (of ponded lobsters re feeding, cover, & stock density)

Conference
J 30(12,2): entire issue (proceedings of FAO Technical Conference on Fishery Management and Development (Vancouver, B.C., Feb. 13-23, 1973); *see* separate index in that issue)

Conger sp. (*see* Eel)

Conover, Robert James
T 401 (St. Margaret's Bay, N.S., zooplankton, 1968-71)
S 1791 (*Clione limacina* feeding & growth)
1817 (criticism & theory of use of radioisotopes to measure transfer of materials in aquatic feed chains)
1831 (*Paedoclione doliiformis* & *C. limacina* reproduction & development)

Conservation (*see also* Exploitation; Management; Species, endangered)
A 291 (re habitat & status of Canadian aquatic coastal mammals)

Contracaecum (*see* Nematoda)

Cook, David Greenfield
S 1845 (Oligochaeta of NE USA)

Cookeolus boops (*see* Bulleye)

Cooking (*see also* Quality of fishery products)
J 30(5): 702 (effects on polychlorinated biphenyls & DDT compounds in L. Michigan coho & chinook salmon flesh)

Cooling (*see* Ice; Refrigeration; Temperature)

Copepoda (*see also* subclassifications of)
J 30(2): 293 (mercury concentration in, off California)
(7): 867(F) (seasonal settling in St. Lawrence R. estuary)
T 401 (in zooplankton of St. Margaret's Bay, N.S., 1968-71)
A 293 (*Penella* copepod parasitic to finner whales)

Copper derivatives
J 30(2): 275 (content of various fishes inshore & offshore USA SE coast)
(3): 363 (lesion induction by, in mummichog & Atl. silverside organs)
(4): 560 (influence on fish aminolevulinate dehydrase activity)
(4): 583 (acute & long-term accumulation by brown bullhead)
(5): 698 (short-term physiological indicators of sublethal effect on brook trout)
(6): 725 (& temperature interaction re goldfish locomotor behavior)
(7): 985 (sulfate effect on Atl. salmon homing through freshwater)
(7): 1014 (in crabs of Fraser R. mudflats, B.C.)
(9): 1287 (concentrations in bluefish & blue antimora muscle re total body weight)
(10): 1553 (chloride effects on lactate oxidation by rainbow trout gills)
S 1830 (content of duck feathers re geographical origin)

Coregonus alpenae (*see* Cisco, longjaw)
artedii (*see* Cisco)
autumnalis (*see* Cisco, Arctic)
canadensis (*see* Whitefish, Atlantic)
clupeaformis (*see* Whitefish, lake)
hoyi (*see* Bloater)
johannae (*see* Cisco, deepwater) *W kiyi* (*see* Kiyi)
laurettae (*see* Cisco, Bering)
nasus (*see* Whitefish, broad)
nigripinnis (*see* Cisco, blackfin)
pidschian (*see* Whitefish, humpback)
reighardi (*see* Cisco, shortnose)
sardinella (*see* Cisco, least)
zenithicus (*see* Cisco, shortjaw)

Corey, Susan
J 30(11): 1747 (some aspects of *Mysis stenolepis* osmoregulation)

Cornick, John Walter
S 1808 (elemental phosphorus as probable cause of moribund herring in Placentia Bay, Nfld.)
1848 (partial characterization of natural agglutinin in lobster hemolymph)

Cornwall, England
J 30(2): 249 (comparison of oyster fishery strategy with that of Nfld. offshore fishery & B.C. inshore salmon fishery)

Corpora lutea (*see* Ovary)

Corrections
J 30(7): 1033 (to article in J 27(3): 413)
(8): 1257 (to recent FRB publications)
(9): 1404 (to article in J 29(12): 1778)

Corticosteroids (*see* Hormones; Steroids)

Corynebacterium (*see* Disease)

Cosmarium botrytis (*see* Photosynthesis)

Cottus aleuticus (*see* Sculpin, coastrange)
asper (*see* Sculpin, prickly)
bairdi (*see* Sculpin, mottled)
cognatus (*see* Sculpin, slimy)
confusus (*see* Sculpin, shorthead)
rhotheus (*see* Sculpin, torrent)
ricei (*see* Sculpin, spoonhead)

Couesius plumbeus (*see* Chub, lake)

Coulter Counter (*see* Counting)

Counting
T 379 (particle concentration measurement in natural waters with Coulter Counter)
T 403 (computer programs for processing data of suspended material collected by Coulter Counter)
S 1781 (size distribution of particulate matter in oceans, with Coulter Counter)

Cousens, Norman Bruce Forrest
J 30(7): 881 (life cycle & morphology of *Salmincola californiensis* in sockeye salmon)

Coutant, Charles Coe
J 30(7): 965 (thermal shock effect on vulnerability of young rainbow trout & chinook salmon to predation)

Cove, John James
J 30(2): 249 (comparison of B.C. inshore salmon fishery strategy with that of Nfld. offshore fishery & Cornish oyster fishery)

Cow (*see* Cattle)

Cox, Robert Edwin
S 1772 (naturally occurring marine tetramethylpentadecane stereochemistry)
1797 (gas chromatographic analysis of acyclic isoprenoid fatty acids stereoisomers)

Crab, Chinese mitten (*Eriocheir sinensis*)
J 30(12,I): 1909 (first records from N America)

Crab, Dungeness (*Cancer magister*)
J 30(7): 1014 (mercury content, Fraser R. mudflats vs. other B.C. coastal points)

Crab, fiddler (*Uca pugilator*)
J 30(6): 846 (cadmium uptake re temperature & salinity stress)

Crab, queen (*see* Crab, snow)

Crab, rock (Atlantic) (*Cancer irroratus*)
S 1751 (bunker C oil in N.S.)

Crab, rock (Pacific) (*Cancer productus*)
J 30(7): 1014 (mercury content, Fraser R. mudflats)

Crab, shore
J 30(1): 41(F) (*Carcinus maenas* hepatopancreas metabolism during intermolt cycle & ovary metabolism during ovogenesis)

Crab, snow (*Chionoecetes opilio*)
J 30(11): 1738 (*Phoma fimeti* microfungus encrustation on carapace)
T 349 (recaptures & movements, Gulf of St. Lawrence)

Crabs
J 30(7): 1014 (mercury & copper content, Fraser R. mudflats)
S 1838 (distribution & description of various SE Vancouver Is. (as of 1930))

Craig, Peter C.
J 30(8): 1215 (life history of 2 isolated Arctic char populations in spring-fed tributaries of Canning R., Alaska)

Craneflies (*see* Tipulidae)

Crangonidae (*see* Shrimp; Shrimps)

Crania californica (brachiopod)
S 1759 (description; first B.C. record)

Cranium (*see* Bone)

Crappie, black (*Pomoxis nigromaculatus*)
B 184: 745 (full description, etc., in Canada)

Crappie, white (*Pomoxis annularis*)
B 184: 741 (full description, etc., in Canada)

Crassostrea gigas (*see* Oyster, Pacific)
virginica (*see* Oyster, American)

Creaser, Edwin Philip, Jr.
J 30(2): 161 (bloodworm reproduction on a Maine estuary)

Cropping
T 383; 384 (experimental, of N.W.T. lakes: plans & simulation results; physical & chemical features of the lakes)

Cross, Ford A.
J 30(9): 1287 (metallic contaminants in bluefish & blue antimora muscle re total body weights)

Crossman, Edwin John
B 184 (Freshwater Fishes of Canada)

Crouch, Dennis Evan
J 30(12,I): 1890 (chinook salmon open-jaw syndrome at a hatchery)

Crustacea (*see also* both scientific and vernacular names of subclassifications)
J 30(1): 17 (role in NW Atl. harp seal feed)
(4): 493 (re ecology of sawdust-bearing substrate in a river estuary)
(4): 519 (planktonic, re eutrophication of Okanagan Valley lakes, B.C.)
(9): 1261 (in American plaice feed)

Cryptophyta; Cryptophyceae
T 337 (of 35 lakes in FRB Experimental Lakes Area, NW Ont.)
S 1803 (sulfur requirements for deaminase activity in *Chroomonas salina* & *Hemiselmis virescens*)

Culaea inconstans (*see* Stickleback, brook)

Cultch (*see* Oyster, Pacific)

Culture (*see also* Aquaculture; Bacteria; Diet; Hatchery; Feed; Pond; Rations)
J 30(2): 143 (batch & dialysis, re growth & cell-size distribution of marine planktonic algae)
(2): 329 (of flagfish for rapid chronic toxicity bioassays)
(11): 1641 (microculture, of brown bullhead cells for channel catfish virus & antibody quantitation)
T 387 (zoobenthos response to vegetable additives to stream substrates)
388 (experimental, of sablefish (1972 results))
S 1746 (shellfish cultivation potential in E Canada)
1852 (Canadian fish, shellfish, & seaweed farming projects)
A 279 (molluscan, in B.C.)
283 (patented synthetic cultch for oyster spat)
292 (salmonid, in Norway)

Cunner (*Tautogolabrus adspersus*)
S 1805 (effect of elemental phosphorus on blood)

Cured fish products (*see* Smoking)

Currents (*see also* Flow; Hydrodynamics; Oceanography; Tides; Transport, mass; *also* next heading)
J 30(1): 121 (winter surface, around Cape Breton Is., N.S.)
(9): 1309 (re ultrasonic tracking Fraser R. mature pink salmon coastal movements)
B 182 (Gulf of St. Lawrence)
T 395 (unusually strong, Hecate Strait, B.C., Sept. 1968)
404 (in St. Margaret's Bay, N.S.)

Currents, reaction of organisms to (*see* Homing; Migration; Spawning; Swimming)

Cushing, David Henry
J 30(12,2): 1965 (recruitment dependence on parent stock)

Cusk (*Brosme brosme*)
J 30(8): 1205 (formation of formaldehyde from trimethylamine oxide in, & its effect on salt-extractable proteins & denaturation of frozen fillets therefrom)
(8): 1246 (trimethylamine, dimethylamine, & extractable protein changes in iced & frozen fillets)
T 402 (re fish assemblages)

Cyanophyta (*see also* Algae; Phytoplankton; Plankton)
J 30(1): 7 (quantitative seasonal grazing on, by larval American brook lamprey & landlocked & anadromous sea lamprey)
T 337 (of 35 lakes in FRB Experimental Lakes Area, NW Ont.)

Cyclopterus lumpus (*see* Lumpfish)

Cyclotella (*see* Diatoms)

Cymatogaster aggregata (*see* Perch, shiner)

Cynoscion nebulosus (*see* Seatrout, spotted)

Cyprinus carpio (*see* Carp)

Cystophora cristata (*see* Seal, hood)

Cytology (*see also* Chromosomes; Eggs, fish; Genetics; Karyotypes; Histology)
J 30(2): 143 (growth & cell-size distribution of cultured marine planktonic algae)
(7): 913 (establishment of cultured line of fibroblast-like cells from Atl. salmon parr tissues, & its susceptibility to 3 viruses)
(11): 1625 (rainbow trout infected with hematopoietic necrosis virus)
S 1805; 1806 (blood cells of Atl. herring affected with elemental phosphorus toxicity)
1818 (improved filtration & concentration techniques for preserving microalgae for electron microscopy)

Cytosol
S 1758 (malic enzyme activity in cod & rabbit testicular tissue)

Czerwinski, Carol Lorraine
J 30(11): 1705 (trout & carp functional activity during recovery after anesthesia & surgery)

D

Dace, blacknose (*Rhinichthys atratulus*)
B 184: 491 (full description, etc., in Canada)

Dace, finescale (*Chrosomus neogaeus*) (*Phoxinus neogaeus*)
B 184: 396 (full description, etc., in Canada)

Dace, leopard (*Rhinichthys falcatus*)
B 184: 498 (full description, etc., in Canada)

Dace, longnose (*Rhinichthys cataractae*)

B 184: 494 (full description, etc., in Canada)

Dace, northern redbelly (*Chrosomus eos*) (*Phoxinus eos*)
B 184: 392 (full description, etc., in Canada)

Dace, pearl (*Semotilus margarita*)
B 184: 515 (full description, etc., in Canada)

Dace, redside (*Clinostomus elongatus*)
B 184: 399 (full description, etc., in Canada)

Dace, speckled (*Rhinichthys osculus*)
B 184: 501 (full description, etc., in Canada)

Dale, Jacqueline
J 30(5): 595 (variation of organochlorine residue levels in blubber re age of Gulf of St. Lawrence harp seals)
(8): 1246 (comparison of changes in amines & extractable protein in iced & frozen Atl. gadoid fillets)

Daley, Ralph James
J 30(3): 345 (integrated quantitative determination of planktonic & sedimentary chlorophylls)

Dallia pectoralis (*see* Blackfish, Alaska)

Dam (*see* Hydroelectric power plant)

Damselflies (*see* Odonata)

Darkness (*see also* Diel habits; Light, reactions to)
J 30(9): 1349 (re *Homarus gammarus* lobster larval development)

Darrow, Donna Coleen
S 1760 (testosterone & its glucuronide in testicular & peripheral plasma of thorny skate)

Darter, blackside (*Percina maculata*)
B 184: 803 (full description, etc., in Canada)

Darter, channel (*Percina copelandi*)
B 184: 801 (full description, etc., in Canada)

Darter, eastern sand (*Ammocrypta pellucida*)
B 184: 775 (full description, etc., in Canada)

Darter, fantail (*Etheostoma flabellare*)
B 184: 787 (full description, etc., in Canada)

Darter, greenside (*Etheostoma blennioides*)
B 184: 777 (full description, etc., in Canada)

Darter, Iowa (*Etheostoma exile*)
J 30(6): 761 (diel habits in Ont. lakes)
B 184: 783 (full description, etc., in Canada)

Darter, johnny (*Etheostoma nigrum*)
J 30(6): 761 (diel habits in Ont. lakes)
(8): 1195 (thermal effects of nuclear power plant discharge on)
B 184: 793 (full description, etc., in Canada)

Darter, least (*Etheostoma microperca*)
B 184: 790 (full description, etc., in Canada)

Darter, rainbow (*Etheostoma caeruleum*)
B 184: 780 (full description, etc., in Canada)

Darter, river (*Percina shumardi*)
B 180: 806 (full description, etc., in Canada)

Davenport, Douglas
T 345 (catches during FRB experimental groundfish cruise off SW Vancouver Is., Sept. 1972)

Davidoff, Edwin Bertram
J 30(11): 1667 (changes in L. Winnipeg whitefish population, 1944–69)

Davis, Hon. Jack
J 30(12,2): 1928 (managing our oceans for mankind)

Davis, John Christopher
J 30(1): 99 (gill irrigation re pressure, in rainbow trout)
(3): 369 (bleached kraft pulpmill effluent (BKME) sublethal effects on sockeye salmon respiration & circulation)
(10): 1565 (bioassay procedures for acute toxicity of BKME to young sockeye, pink, & coho salmon)

Davis, Wayne Ray
J 30(2): 181 (pollution effect on fatty acid composition of a polychaete & bivalve, Narragansett Bay, R. I.)

Dawe, Donald Louis
J 30(11): 1641 (brown bullhead cell microculture for use in channel catfish virus & antibody quantitation)

DDT and derivatives (*see* Hydrocarbons, halogenated; Insecticides)

Debris (*see also* Logging)
J 30(6): 853 (role of woody, re pumpkinseed sunfish nest selection)
T 385 (types & effects of, on inshore bottom of Howe Sound, B.C.)

Decapoda (*see also* Crab; Crabs; Crustacea; Lobster; Shrimp; Shrimps)
J 30(1): 17 (role in feed of NW Atl. harp seal)
S 1838 (brief description & distribution of various, SE Vancouver Is. coast)

Decapterus punctatus (*see* Scad, round)

Dechtiar, Alex O.
J 30(8): 1155 (new & previously described *Lyrodiscus*

monogenean trematodes from Great Lakes fishes)

Deformity (*see* Abnormality)

DeFreitas, Antony Stanley Walter
S 1774 (metabolism of polychlorinated biphenyls isomers in pigeon, rat, & brook trout)

Dehydrogenases (*see* Enzymes)

Delphinapterus leucas (*see* Whale, white)

Delphinus delphis (*see* Dolphin, common)

Denaturation (*see also* Drip; Muscle; Proteins)
J 30(8): 1205 (in frozen gadoid fillets, re formaldehyde formation in flesh)

Denman, Kenneth Leslie
T 380 (energy changes re wind mixing in upper ocean)
S 1857 (upper layer modifications at Pac. Ocean Station P)
1858 (a time-dependent model of the upper ocean)

Density
T 404 (of St. Margaret's Bay, N.S., re circulation)

Denton, Eric James
S 1775; 1776 (properties of silvery layers of salmon & herring skin & scales)

Deoxyribonuclease (*see* Enzymes)

Depth (*see also* Distribution; Hydrodynamics; Hydrography; Limnology; Oceanography; Pressure, hydrostatic)
J 30(9): 1402 (pressure-sensing ultrasonic transmitter for swimming depth of aquatic animals)

Derichthys serpentinus (mesopelagic fish, no common name as yet)
J 30(1): 134 (length of a specimen taken in or off Gulf of Maine)

Dermochelys coriacea (*see* Turtle, leatherback)

Derogenes (*see* Trematoda)

Desai, Indrajit Dayalji
S 1803 (sulfur requirements for deaminase activity in 2 cryptophytes)

DesVoigne, David Merritt
J 30(8): 1240 (resistance of threespine sticklebacks & coho salmon to pollutants in sediments dredged from an estuary, Seattle, Wash.)

Detergents (*see* Nitrilotriacetate; Phosphates; Pollution)

Detritus (*see also* Logging; Pollution)
B 182 (dispersal & sources, Gulf of St. Lawrence)
T 385 (benthic, near shoreline of Howe Sound, B.C. (color photos))

Development (of fisheries)
J 30(12,2): entire issue (proceedings of FAO Technical Conference on Fishery Management and Development (Vancouver, B.C., Feb. 13–23, 1973); *see* separate index in that issue)

Development (of organisms) (*see also* Eggs; Embryo; Growth; Life cycle; Life history; Maturity; Size)
J 30(3): 435 (temperature effect on energy utilization of embryonic & postlarval tautog)
(6): 799 (temperature effects on lake herring)
(6): 849 (effects of reduced oxygen concentrations on northern pike)
(9): 1349 (lobster larval, re pressure & light changes)
(12,1): 1894(effect of DDT & dieldrin insectides on winter flounder egg)
T 364; 405 (evaluation of gravel incubators for pink salmon fry & adult stages)
S 1738 (temperature effect on horse clam larvae)
1831 (*Paedoclione doliiformis* & *Clione limacina* pteropods)

Dia, Malick Ibrahima
J 30(12,2): 2282(F) (fisheries development, W Africa)

Diaphus dumerili (a headlightfish (?); no common name yet assigned)
J 30(1): 134 (length of a specimen taken in or off Gulf of Maine)

Diaphus mollis (a headlightfish (?); no common name yet assigned)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, off SE coast USA)

Diatoms (Bacillariophyta; Chrysophyta) (*see also* Algae; Phytoplankton; Plankton)
J 30(1): 7 (utilization & selectivity by larval lampreys for feed)
(2): 143 (growth & cell-size distribution of batch & dialysis cultures of *Skeletonema costatum*, *Cyclotella nana*, *Thalassiosira* sp., & *Phaeodactylum tricornutum*)
(12,1): 1825 (experimental feeding of *Isochrysis galbana* & *P. tricornutum* to young butter clams)
T 337 (of 35 lakes in FRB Experimental Lakes Area, NW Ont.)

Diaz, Robert James
J 30(7): 991 (effects of brief temperature increases on American oyster larvae)

Dickie, Lloyd Merlin
J 30(12,2): 2496 (fishery management & environmental protection interaction)
S 1749 (highlights of marine science & technology in Canada)

1846 (ecological subsystems re fisheries management)

Dickman, Mike
J 30(12,1): 1882 (periphytic algae changes after bicarbonate additions to a small stream)

Dictionary
B 183 (Russian–English, for students of fisheries & aquatic biology)

Diel habits and cycles (*see also* Light, reactions to; Temperature effects or reactions)
J 30(4): 551 (*Aglantha digitale* trachymedusa, Saanich Inlet, B.C.)
(6): 761 (comparative day, twilight, & night habits of fishes of 21 Ont. lakes)
(12,1): 1779 (re net plankton photosynthesis cycles, L. Ontario)
T 370 (review of diurnal rhythms in natural marine phytoplankton populations)
378 (re young sockeye salmon vertical movements & feeding, Babine L., B.C.)

Dieldrin (*see* Insecticides)

Diesel oil (*see* Oils, petroleum)

Diestothyris frontalis (brachiopod)
S 1759 (description, from B.C.)

Diet (*see also* Culture; Feed; Feedstuffs; Hatchery; Predation; Ration)
J 30(7): 1017 (liver changes in rainbow trout when fed casein–gelatin & herring oil)
(8): 1191 (feeding regime effect on sockeye salmon fry growth rate & size)
(10): 1604 (re fatty acids of channel catfish variance of)
(11): 1647 (effect of added starch in, on lobster digestive enzyme secretion)
(11): 1661 (statistical approach to changes produced by, in coho salmon fatty acid content)
(12,1): 1867 (re salinity influence on rainbow trout protein requirements)

Digenea (*see also* Trematoda)
S 1832 (of NE Pac. ocean perch)

Digestion (*see also* Alimentary tract; Bioenergetics; Feed; Metabolism; Ration; Stomach)
J 30(2): 201 (effect of simulated (glass beads) meal size on gastric acid & pepsin secretory rates in bluegill)
(9): 1327 (gastric, in walleye & sauger)
(11): 1647 (effect of added dietary starch on lobster digestive enzyme secretions)
S 1737 (carbohydrases of digestive gland & crystalline style in sea scallop)
1796 (isolation & properties of lobster digestive amylase)

Dimethylamine (*see also* Trimethylamine)
J 30(1): 91; (8): 1205 (re formaldehyde formation in fish muscle)
(8): 1246 (re changes in extractable protein in iced & frozen gadoid fishes)
S 1847 (re quality of stored fish)

Dimorphism
B 180 (B.C. marine fishes)
184 (Canadian freshwater fishes)

Dinoflagellate (*see Gonyaulax*)

Dinophyceae (*see* Algae; *Gonyaulax*)

Diop, B
J 30(12,2): 2282(F) (fisheries development, W Africa)

Diptera (*see also* Chaoboridae; Chironomidae; Insects; Simuliidae)
CNG 95 (life cycle of, S Vancouver Is.)
T 387 (vegetable additives to stream gravel, as feed for)

Discinisca lamellosa (brachiopod)
S 1759 (description; first B.C. record)

Disease (*see also* Pathology; Tumor; for columnaris disease, *see* that heading; for furunculosis, *see* that heading; for gaffkemia of lobsters, *see* Gaffkya; Lobster; for infectious hematopoietic necrosis, *see* Viruses; for infectious pancreatic necrosis, *see* Viruses)
J 30(2): 296 (corynebacterial kidney, of coho salmon: nutritional factors in biochemical pathology)
(4): 549; (10): 1578 (corynebacterial kidney, of rainbow trout)
(4): 571 (outbreak of redmouth, in rainbow trout in a S Sask. lake; correction on J 30(8): 1257)
(9): 1383 (computer program for sample sizes to determine incidence in fish populations)
(11): 1713 (whirling, of salmonids: detection of myxosporidian spores causing)
S 1733 (*Vibrio* infection of Atl. cod nasal region)

Dispersant (for oil spills on waters) (*see also* Oils, petroleum; Pollution)
J 30(12,1): 1789 (crawling & respiration rates as index of sublethal effects on a marine snail)

Distillation
S 1788 (fractional vacuum, of Atl. herring oil methyl esters)

Distribution (*see also* Marking; Migration; Species, indicator; Species, new records; Tagging) (for distribution of chemical elements on tissues of organisms, *see* names of chemical elements)
J 30(5): 665 (3 new species of *Monodiamesa* chironomids)
(6): 761 (vertical diel, of fishes of various Ont. lakes)
(8): 1111 (various odontocete Cetacea, NW Atl.)

(8): 1230 (dusky rockfish)
(10): 1559 (*Lipogenys gilli* rare fish, in NW Atl.)
(12,1): 1819 (vertical & diurnal, of lobster larvae in Northumberland Strait, 1962–63, re commercial stocks)
(12,1): 1831 (*Bathyraja richardsoni* deepwater skate in NW Atl.)
B 180 (& range of most of 325 species of B.C. marine fishes)
182 (grain-size frequency, in Gulf of St. Lawrence sediments)
184 (maps of world, N American, & Canadian, of most of 181 freshwater fish species found in Canada)
T 304 (Arctic lamprey in Great Slave L. region, N.W.T.)
337 (seasonal phytoplankton species in FRB Experimental Lakes Area lakes NW Ont.)
351 (chlorophyll *a* in lakes Ontario & Erie, 1970)
352 (spatial & seasonal distribution in Bedford Basin, N.S.)
S 1764 (ranges & Montana distribution of 119 stonefly species)
1781; 1786 (of particulate matter by size, in various oceans)
1830 (chemical elements of duck feathers re geographical origin)
1838 (various decapods, SE Vancouver Is. shores)

Dixidae (stream insects)
CNG 95 (description)

Doan, Kenneth Henry
J 30(11): 1667 (changes in L. Winnipeg whitefish population, 1944–69)

Dodson, Julian John
J 30(12,1): 1847 (adult American shad homing behavior)

Dogfish, spiny (*Squalus acanthias*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle & some organs, SE coast USA)
B 184: 10 (observed in Canadian fresh or brackish waters)
T 338 (B.C. landings 1961–71 & additional 1971 data)
398 (1972 B.C. commercial fishery catch & effort statistics)
402 (re fish assemblages, SW Scotian Shelf)
S 1734 (chemical analysis of meal as protein & energy source for poultry ration supplement)

Dokuchaev, Igor Ivanovitch
J 30(12,2): 2427 (ICNAF development of national fishery quotas)

Dolly Varden (trout) (*Salvelinus malma*)
J 30(4): 543 (fecundity of resident & anadromous in SE Alaska)
B 180: 134 (full description, etc., in coastal B.C.)
B 184: 214 (full description, etc., in Canada)
A 273 (logging debris effects on production in small streams)

Dolphin (*Orcinus orca*) (*see* Whale, killer)

Dolphin, bottlenosed (*Tursiops truncatus*)
J 30(7): 1009 (age, growth, & maturity, NE Florida)
(8): 1111 (new records, distribution, pigmentation, feed, parasites, morphometry, dentition, NW Atl.)
S 1787 (possible role of wax esters in head fats re echolocation)

Dolphin, common (*Delphinus delphis*) (saddleback dolphin)
J 30(8): 1111 (new records, distribution, pigmentation, feed, parasites, morphometry, dentition, NW Atl.)
S 1752 (ICNAF 1963 sightings, N Atl.)

Dolphin, euphrosyne (*see* Dolphin, striped)

Dolphin, Risso's (*Grampus griseus*) (gray grampus)
J 30(8): 1111 (sightings & distribution, NW Atl.)

Dolphin, saddleback (*see* Dolphin, common)

Dolphin, spotted (*Stenella plagiodon*)
J 30(8): 1111 (sightings, nomenclature, NW Atl.)

Dolphin, striped (*Stenella coeruleoalba*) (euphrosyne dolphin)
J 30(8): 1111 (first Nfld. records; distribution, taxonomy, pigmentation, morphometry, dentition, NW Atl.)

Dolphin, white-beaked (*Lagenorhynchus albirostris*)
J 30(8): 1111 (distribution, pigmentation, morphometry, dentition, NW Atl.)
S 1752 (ICNAF sightings in N Atl., 1963)

Dolphin, white-sided (*Lagenorhynchus acutus*)
J 30(8): 1111 (distribution, pigmentation, morphometry, reproduction, dentition, NW Atl.)

Donaldson, Edward Mossop
S 1732 (gonadotropin preparation from chinook salmon pituitary glands)
1761 (corticosteroid dynamics in male mature sockeye salmon)
1770; 1833 (inducing precocious sexual maturity in pink salmon)
1784 (gonadotropin activities on goldfish ovary adenyl cyclase)
1785 (salmon pituitary gonadotropin induction of ayu ovulation)

Dormaar, Kim Augustus
J 30(11): 1747 (some aspects of *Mysis stenolepis* osmoregulation)

Dorosoma cepedianum (*see* Shad, gizzard)

Dragonfish, boa (*Stomias boa ferox*)
J 30(1): 134 (lengths of 23 specimens taken in or off Gulf of Maine)

Dragonflies (*see* Odonata)

Drainage basins
B 184: 5 (list of freshwater fish species in Canadian portion of each of Atlantic, Hudson Bay, Arctic, Pacific, & Gulf of Mexico drainage areas)

Dredges; Dredging
J 30(2): 173 (underwater observations of tracks, & effects on sea scallop beds)
(8): 1240 (of Seattle, Wash., estuary: effects of disturbed sediments on threespine sticklebacks & coho salmon)

Drinnan, Roy Ellis
S 1746 (shellfish cultivation potential in E Canada)

Drip (*see also* Fillets; Thawing)
J 30(1): 71 (on thawing Pac. halibut & chinook salmon after brine- vs. plate-freezing the fish at sea, re flesh quality)
(5): 685 (sodium tripolyphosphate effect on thaw-drip of some freshwater fish fillets)
T 363 (on thawing stored frozen Pac. halibut after chilling vs. freezing at sea)

Drum, freshwater (*Aplodinotus grunniens*) (sheepshead)
B 184: 812 (full description, etc., in Canada)

Drummond, Robert Alan
J 30(5): 698 (short-term physiological indicators of copper effect on brook trout)

Drygeese Lake, N.W.T.
T 384 (physical & chemical features re biological cropping investigations)

Ducks (*Anas, Aythya,* etc.)
S 1745; 1801 (mercury content in muscle & liver of various Canadian prairie species)
1830 (chemical element composition of plumage re geographical origins of mallards, black ducks, & lesser scaup)
1843 (observations of various species, W Victoria Is., Canadian arctic, 1971)

Duedall, Ivor Warren
S 1815 (compressimeter for compressibility of seawater solutions)

Dugal, Louis Charles
J 30(5): 685 (Na tripolyphosphate effect on thaw-drip & taste of fillets from various freshwater fishes)

Dupree, Harry Kenneth
J 30(11): 1743 (endrin uptake & release by young channel catfish)

Dutton, Guy Gordon Studdy
S 1778 (chromatography & mass spectrometry of methylated alditol acetates)

Duval, Wayne Stuart
J 30(2): 313 (submersible spectroradiometer & data acquisition system)

Dye
J 30(9): 1301 (rainbow trout metabolism & biliary excretion of sulfobromophthalein)
(10): 1491 (Rhodamine B for tracing vertical eddy diffusion in thermocline of a small stratified lake)

Dye, Helen Marguerite
S 1732 (gonadotropin preparation from chinook salmon pituitary glands)
1833 (chinook pituitary stimulation of pink salmon ovulation)

Dyer, William John
J 30(1): 45 (metabolic changes in unfrozen & thawed sea scallop adductor muscle)
(8): 1205 (formaldehyde production from trimethylamine oxide in gadoid fishes, & its effect on salt-extractable proteins & denaturation in frozen fillets therefrom)
S 1847 (new technical research on frozen fish)

Dynamics, population (*see* Exploitation; Models, mathematical; Populations)

E

Eales, John Geoffrey
J 30(8): 1131 (triiodothyronine & thyroxine binding to brook trout blood plasma proteins)
B 166(F) (French edition of Bulletin on Eel Fisheries of Eastern Canada)

Ealey, David
J 30(6): 853 (role of woody debris in pumpkinseed nest site selection)

Ecdysis (*see* Molting)

Echinodermata (*see also* Sea urchin; Starfish)
J 30(9): 1261 (in American plaice feed)
T 385 (benthic, near shoreline of Howe Sound, B.C., re pollution)
S 1792 (re benthos functional components, St. Margaret's Bay, N.S.)

Echo sounding (*see* Sounding, echo)

Echolocation, by animals (*see also* Vocalization)
S 1787 (possible role of head fat wax esters in Odontoceta)
1851 (short pulse length audio frequency sounds by minke whale)

Echolocation, of animals (*see* Sounding, echo; Tracking)

Ecology (*see also* various aspects of, e.g. Ecosystems; Environment; Pollution)
J 30(1): 17 (feeding, growth, & productivity re NW Atl. harp seal ecological efficiency)
(3): 451 (& behavior of northern sand lance)
(4): 493 (macrobenthic, of sawdust-bearing substrate in Penobscot R. estuary, Maine)
(4): 576 (mathematical theory of optimum control applied to dynamic aquatic ecosystem)
(5): 665 (3 new species of *Monodiamesa* chironomids)
(9): 1317 (coupling carbon flow through pelagic & benthic communities)
A 275; 277 (re eutrophication of lakes)
286 (review of book on fundamentals of)

Economics (*see also* Fisheries; Management; Yield)
J 30(2): 249 (comparison of Nfld. offshore fishing strategy with that of B.C. inshore salmon fishery & Cornish oyster fishery)
(4): 509 (optimum economic yield of a fishery, given a variable output price)
(12,2): entire issue (proceedings of FAO Technical Conference on Fishery Management and Development (Vancouver, B.C., Feb. 13–23, 1973); *see* separate index in that issue)
B 180 (many species of B.C. marine fishes)
184 (many species of Canadian freshwater fishes)

Ecosystems (*see also* Ecology)
J 30(4): 576 (mathematical theory of optimum control applied to dynamic aquatic ecosystem)
T 370 (structure & stability of marine phytoplanktonic)
S 1800 (stability of enriched aquatic)
1846 (ecological subsystems re fisheries management)

Eddie, G. Cowan
J 30(12,2): 2490 (technical development re world fisheries problems)

Edelman, Mikhail Solomonovitch
J 30(12,2): 2427 (ICNAF development of national fishery quotas)

Edmunds, Philip Howell
J 30(7): 1031 (genic polymorphism of tetrazolium oxidase in bluefin tuna from France & NW Atl.)

Edwards, Gordon
J 30(11): 1629 (Beverton-Holt model of a commercial fishery: optimal dynamics)

Eel
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of *Conger* sp. muscle, SE coast USA)

Eel, American (*Anguilla rostrata*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, SE coast USA)
(3): 454 (elementary Hg & methylmercury content, N.S.)
(5): 657 (sensitivity to weak electric & magnetic fields)
(5): 689 (age re development of macrophthalmia of eye)
(5): 693 (recording heart & operculum beats without implanted electrodes)
(8): 1195 (thermal effects of nuclear power plant discharge on)
(9): 1392 (effect of nitrogen supersaturation in water passing through hydroelectric turbines)
(9): 1398 (competition & predation effects on brook trout population in a Que. lake)
(10): 1586 (re postglacial colonization of Matemek R., Que.)
(11): 1752 (occurrence of, in waters over E North American continental shelf)
B 166(F) (French edition of Bulletin on the Eel Fisheries of Eastern Canada)
184: 624 (full description, etc., in Canada)

Eel, Atlantic snipe (*see* Eel, slender snipe)

Eel, duckbill oceanic (*Nessorhamphus ingolfianus*)
J 30(1): 134 (lengths of 2 specimens taken in or off Gulf of Maine)

Eel, palespotted (*Ophichthus ocellatus*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, SE coast USA)

Eel, shrimp (*Ophichthus gomesi*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, SE coast USA)

Eel, slender snipe (*Nemichthys scolopaceus*) (Atlantic snipe eel)
J 30(1): 134 (lengths of 12 specimens taken in or off Gulf of Maine)

Eel, snipe
J 30(2): 293 (mercury concentration in *Serrivomer sector*, off California)

Eel fisheries
B 166(F) (French edition of Bulletin on the Eel Fisheries of Eastern Canada)

Eelblenny, slender (*Lumpenus fabricii*)
J 30(12,1): 1888 (southern record in N.S.)

Eelpout, blackbelly (*Lycodopsis pacifica*)
T 393 (sediment preference, & abundance, off Point Grey, B.C.)

Effluent (*see* Fish processing wastes; Mine wastes; Pollution; Pulpmill effluents)

Egg (*see also* Culture; Cytology; Development; Embryo;

Fecundity; Gonads; Hatchery; Ovary; Reproduction; Roe; Spawning; *also* names of oviparous animals)
J 30(2): 229 (rainbow trout choice of trout egg color re their predation on sockeye salmon eggs)
(2): 275 (As, Cd, Cu, Hg, & Zn content, in 3 inshore fish species, SE coast USA)
(8): 1215 (size, of Arctic char, Canning R., Alaska)
(8): 1249 (yolk-sac malformation in Pac. salmons & a pink × chinook salmon hybrid, re hatchery conditions)
(12,1): 1894 (effects of DDT & dieldrin insecticides on development of winter flounder)
T 344 (cormorant & herring gull: dibutyl phthalate environmental pollutant found in)
355–357; 359 (B.C. herring spawning deposition in recent years)

Eglinton, Geoffrey
S 1747 (isoprenoid fatty acid diastereoisomerism re marine lipids & organic geochemistry)
1797 (gas chromatographic analysis of acyclic isoprenoid fatty acid stereoisomers)

Eisan, Joanne Sylvia
S 1758 (rabbit & Atl. cod testicular tissue malic enzymes)

Ekman transport (of ocean waters) (*see* Transport, mass (of waters))

Electrophoresis
J 30(5): 706 (of fish myofibrillar proteins with a polyacrylamide gel)
(7): 927 (of malate dehydrogenase isozymes re discrimination of sauger, walleye, & their suspected hybrids)

Electrosensitivity
J 30(5): 657 (of American eel & Atl. salmon re oceanic electric fields as possible guides for migration)
(10): 1581 (apparatus for detecting effects of motionally induced on animals)
S 1757; 1777 (goldfish cerebellum electrical responses)
1795 (re fishes chemoreception & physiology)

Elliot, Gerald Henry
J 30(12,2): 2486 (government management policies re fishing industry problems)

Elson, Paul Frederick
A 295 (tracking Atl. salmon by implanted ultrasonic transmitter)

Emadi, Hossein
J 30(8): 1249 (yolk-sac malformation of Pac. salmons & a salmon hybrid, re certain hatchery conditions)

Embryo (*see also* Development; Eggs; *also* names of adult organisms)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content in 2 inshore shark species, SE coast USA)
(3): 435 (temperature influence on energy utilization of tautog)
(6): 799 (temperature effect on development of lake herring)
(6): 849 (reduced oxygen concentration effects on northern pike)
(7): 975 (thermal requirements for survival of brook trout)

Emerson, Steve
J 30(10): 1475 (gas-exchange rates as determined by ^{222}radon method in a small lake)
(10): 1485 (distribution & uptake of artificially introduced ^{226}radium in a small lake)
S 1773 (CO_2 role in maintaining phytoplankton standing crops)

Emery, Alan Roy
J 30(6): 761 (diel habits of 21 species of Ont. lakes fishes)

Enchytraeidae (*see also* Oligochaeta)
S 1845 (of NE USA)

Endocrinology (*see* Hormones; Steroids)

Endrin (*see* Pesticides)

Energetics (*see* Bioenergetics)

Energy, radiant (*see* Irradiation; Light, reactions to; Photosynthesis; Radiometer; for radioactive isotopes, *see* names of elements)

Energy budget (*see* Bioenergetics)

Energy flow (*see* Bioenergetics; Metabolism)

Energy in natural waters (*see* Hydrodynamics; Oceanography; Transfer, mass)

Enhydra lutris (*see* Sea otter)

Ennis, Gerald Peter
J 30(9): 1349 (lobster larval development re hydrostatic pressure & light)
(12,1): 1905 (feed, feeding, & condition of lobsters, Bonavista Bay, Nfld.)

Enrichment (*see* Fertilization)

Ensis directus (*see* Clam, razor (Atlantic))

Enteromorpha (*see* Chlorophyta)

Entobdella (*see* Monogenea)

Entosphenus tridentatus (*see* Lamprey, Pacific)

Enumeration (*see* Counting)

Environment (*see also* Behavior; Debris; Ecology; Logging; Pollution; *also* other factors affecting environment)
J 30(3): 357 (occupied by creek chub, Mink R., Man.)
(6): 853 (role of woody debris in pumpkinseed nest site selection)
(11): 1740 (influence of, on later response of young rainbow trout to black & white substrates)
CNG 94 (effect of oceanographic changes on NE Pac. fisheries)
A 282 (B.C. shoreline, re pollution effects)

Enzymes
J 30(2): 187 (genetics of glycerol-3-phosphate dehydrogenase isozymes in lake whitefish white muscle)
(2): 201 (gastric acid & pepsin secretory rates in bluegill re simulated (glass beads) meal size)
(4): 560 (effects of various metals on aminolevulinate dehydrase activity)
(7): 927 (malate dehydrogenase isozyme electropherograms re taxonomic discrimination of sauger, walleye, & their suspected hybrids)
(7): 1023 (pH activity of 2 lactate dehydrogenase homotetramers from steelhead trout livers, & their physiological significance)
(7): 1031 (genic polymorphism of tetrazolium oxidase in bluefin tuna from France & NW Atl.)
(8): 1205 (that reduce trimethylamine oxide to formaldehyde in gadoid fish muscle)
(11): 1647 (effect of added dietary starch on lobster digestive secretion of proteinase, lipase, & amylase)
(11): 1713 (trypsin digestion for isolation & concentration of myxosporidian spores from fish skeletal elements)
(11): 1745 (pepsin & plastein reaction for recovering protein from fish wastes)
(12,1): 1861 (1-methyladenosine hydrolase of ochre starfish)
S 1730 (nonspecific phosphatase in marine alga)
1731 (purification & properties of deoxyribonuclease from chum salmon testes)
1737 (carbohydrases of sea scallop digestive gland & crystalline style)
1758 (rabbit & Atl. cod testicular tissue malic)
1784 (gonadotropin stimulation of adenyl cyclase activity in goldfish ovary)
1796 (isolation & properties of lobster digestive amylase)
1803 (disulfide & sulfhydryl requirements for L-threonine deaminase activity)
1823 (arginine dihydrolase in arginine catabolism of *Aeromonas salmonicida*)
1835 (model of interfacial orientation re action of lipases)

Eopsetta jordani (*see* Sole, petrale)

Ephemeroptera (mayflies)
CNG 95 (life cycle & guide to S Vancouver Is.)
T 387 (vegetable additives to stream gravel, as feed for)

Epibenthos (*see also* Benthos)
J 30(6): 787 (risk of epibenthic prey to predation by rainbow trout)
(7): 867(F) (seasonal effect on settlement, St. Lawrence R. estuary)

Epilithiphyton
J 30(10): 1511 (photosynthesis by, & production of, in 2 FRB Experimental Lakes Area lakes, NW Ont.)

Equipment (*see* Apparatus)

Erie, Lake (*see also* Great Lakes)
J 30(11): 1697 (temperatures selected seasonally by 4 fishes in western)
T 351 (chlorophyll *a* distribution in surface waters, 1970)

Erimyzon sucetta (*see* Chubsucker, lake)

Eriocheir sinensis (*see* Crab, Chinese mitten)

Errata (*see* Corrections)

Erythrocytes (*see* Blood)

Escapements (*see also* Fisheries; Management; Spawning)
T 371 (mean length &/or weight of pink salmon in recent years, B.C.)

Eskimo
A 294 (ringed seal utilization)

Esox americanus americanus (*see* Pickerel, redfin)
americanus vermiculatus (*see* Pickerel, grass)
lucius (*see* Pike, northern)
masquinongy (*see* Muskellunge)
niger (*see* Pickerel, chain)

Esters (*see also* Acids, fatty; Glycerides; Lipids; Oils and fats; Waxes)
S 1788 (fractional vacuum distillation of Atl. herring oil methyl)

Estuary
J 30(4): 493 (macrobenthic ecology of sawdust-bearing substrate, Penobscot R., Maine)
(7): 1014 (mercury & other heavy metals in bottom organisms, Fraser R. mudflats, B.C.)
(8): 1240 (effects of dredged polluted sediments on threespine sticklebacks & coho salmon, Seattle, Wash.)
S 1771; 1827; 1828 (effects of pulpmill effluents on, Alberni Inlet, B.C.)

Etheostoma blennioides (*see* Darter, greenside)
caeruleum (*see* Darter, rainbow)
exile (*see* Darter, Iowa)
flabellare (*see* Darter, fantail)
microperca (*see* Darter, least)
nigrum (*see* Darter, johnny)

Ethylene oxide
J 30(2): 269 (for formulated & pelleted fish feed sterilization)

Etymology (*see* Nomenclature)

Eubothrium (*see* Cestoda)

Euglenophyta
J 30(1): 7 (quantitative seasonal grazing on, by larval American brook lamprey & landlocked & anadromous sea lamprey)
T 337 (of 35 lakes in FRB Experimental Lakes Area, NW Ont.)

Eulachon (*Thaleichthys pacificus*)
B 184 (full description, etc., in Canada (*see also* B 180: 148))
T 368 (bibliography)

Eumetopia jubata (*see* Sea lion, Steller's)

Euphausiacea (*see also* Crustacea; Malacostrata)
J 30(1): 17 (role in NW Atl. harp seal food)
T 350 (feasibility of high-frequency sonar mapping of concentrations in Gulf of St. Lawrence; possibilities of commercial fishery for)

Euthynnus alletteratus (*see* Tunny, little)
pelamis (*see* Tuna, skipjack)

Eutrophication (*see also* Lakes; Limnology; Oceanography; Pollution; Sediments; *also* types of pollutants)
J 30(4): 519 (re crustacean plankton in Okanagan Valley lakes, B.C.)
(10): 1415, 1475, 1485, 1491, 1501, 1547 (various aspects of, in FRB Experimental Lakes Area lakes, NW Ont.)
T 337 (effects on phytoplankton of FRB Experimental Lakes Area lakes, NW Ont.)
342 (effects on bottom fauna of Okanagan Valley lakes, B.C.)
A 277 (the "algal bowl" — a Faustian view of eutrophication)
288 (ultimate causes & control of cultural, in lakes)

Evelyn, Trevor Patrick Todd
J 30(10): 1578 (first record of bacterial kidney disease in apparently wild salmonid in B.C.)

Excretion (*see also* Pollution)
J 30(9): 1301 (metabolism & biliary excretion of introduced dye by rainbow trout)

Exoglossum maxillingua (*see* Minnow, cutlips)

Experimental Lakes Area, Northwest Ontario (*see* Fisheries Research Board of Canada Experimental Lakes Area)

Exploitation
J 30(5): 695 (simple methods of estimating mortality rates re fish populations)
(9): 1275 (mechanisms thwarting maintenance of peak-period yields from stocks of Pac. salmons & other fishes)
(11): 1629 (re optimal dynamics of Beverton–Holt model of commercial fishery)
(12,2): 2099 (world fishery resources)
S 1826 (NW Atl. fin whales)

Eye (*see also* Light, reaction to; Vision)
J 30(5): 689 (macrophthalmia in American eel)
(8): 1141 (accomodative lens movements re feeding behavior in 7 freshwater fish species)
(10): 1600 (does eyestalk ablation accelerate lobster molting?)
S 1836 (methylmercury concentration in lens of northern pike)

F

Fagerlund, Ulf Henrik Mathias
J 30(8): 1099 (testosterone derivative for promoting young coho & chinook salmon weight increases)
S 1761 (corticosteroid dynamics in male mature sockeye salmon)

Falkner, Neil Ward
J 30(8): 1131 (triiodothyronine & thyroxine binding to brook trout blood plasma proteins)

Fallfish (*Semotilus corporalis*)
J 30(6): 761 (diel habits in Ont. lakes)
B 184 511 (full description, etc., in Canada)

FAO (*see* Food and Agriculture Organization of the United Nations)

Farmer, Gilbert John
J 30(5): 601 (sea lamprey predation selectivity re freshwater fishes)

Farming (*see* Culture; Fish farming)

Farrington, John William
J 30(2): 181 (pollution effect on fatty acid composition of a polychaete & bivalve, Narragansett Bay, R.I.

Fat content (*see* Composition, chemical; Condition (physiological); Oils and fats)

Fatigue (*see* Activity; Stress; Swimming)

Fatness (*see* Condition (physiological))

Fats (*see* Acids, fatty; Glycerides; Lipids; Oils and fats)

Fatty acids (*see* Acids, fatty)

Fauna (Fishes, birds, mammals, and some invertebrates are indexed under their vernacular and/or scientific names;

many other invertebrates are indexed only under their phyla, classes, orders, and in some cases families and genera. For references to groups or collections not separately indexed, *see* headings such as Benthos; Biomass; Epibenthos; Fishes, lists of; Invertebrates, general; Phytoplankton; Plankton; *see also* Species, new)
T 342 (survey of bottom fauna in Okanagan Valley lakes, B.C.)

Feathers (*see also* Birds)
S 1830 (chemical content of duck re geographical origins)

Fecundity (*see also* Eggs; Reproduction; Spawning)
J 30(4): 543 (resident & anadromous Dolly Varden, SE Alaska)
(6): 811 (*Calanus plumchrus*, Strait of Georgia)
(8): 1215 (Arctic char, Canning R., Alaska)
(8): 1221 (SE L. Michigan trout-perch)
T 304 (Arctic lamprey, Great Slave L. region, N.W.T.)
355; 356; 357; 359 (B.C. herring)
S 1831 *Paedoclione doliiformis* pteropod)

Fee, Everett John
J 30(10): 1447, 1469, 1501 (modelling primary production in water bodies)
T 376 (digital computer program for calculating integral primary production in lakes)

Feed; Feed chain; Feeding habits; Stomach contents (*see also* Bioenergetics; Culture; Diet; Digestion; Feedstuffs; Nutrition; Predation; Ration; Starvation)
J 30(1): 1 (starvation & subsequent feeding effects on sockeye salmon fry survival & growth)
(1): 7 (algal, of American brook lamprey & landlocked & anadromous sea lamprey larvae)
(1): 17 (feeding habits, consumption, & ecological efficiency of NW Atl. harp seal)
(2): 201 (simulated (glass beads) meal size effect on secretory rates of digestive enzymes in bluegill)
(2): 229 (rainbow trout choice of colors of feed items)
(2): 269 (ethylene oxide for sterilization of, for fish)
(2): 293 (mercury concentration in a pelagic feed chain, off California)
(2): 317 (appearance of prey & predatory satiation effect on nothern pike feed selection)
(3): 357 (creek chub diet, Mink R., Man.)
(3): 443 (parasitic gut nematode effects on young rainbow trout feed consumption)
(3): 451 (of northern sand lance)
(4): 499 (sodium pentachlorophenate effect on young sockeye salmon feed conversion efficiency)
(5): 623 (feed consumption rates estimation evaluation, for fishes)
(5): 698 (sublethal effects of copper on brook trout feed response)
(6): 761 (habits of 21 species of Ont. lake fishes)
(6): 787 (epibenthic, of rainbow trout)
(7): 1021 (one-way glass for assessing fish discrimination of)
(8): 1065 (white whale, W Hudson Bay)
(8): 1111 (7 odontocete Cetacea species, NW Atl.)
(8): 1141 (behavior, re accommodative lens movement of 7 freshwater fishes)
(8): 1179 (re ninespine stickleback energy budget in an Alaskan arctic lake)
(8): 1215 (Arctic char, Canning R., Alaska)
(9): 1261 (American plaice, Grand Bank, off Nfld.)
(9): 1327 (walleye feeding periodicity, digestion, consumption, & conversion efficiency)
(9): 1374 (winter flounder intertidal feeding, Bay of Fundy)
(9): 1398 (of American eel in a Que. lake)
(12,1): 1905 (seasonal cycle, Bonavista Bay lobsters, Nfld.)
B 180 (of most of 325 species of B.C. marine fishes)
184 (of most of 181 species of Canadian freshwater fishes)
T 361 (habits re alimentary tract morphology of some N Atl. fishes)
377 (re lobster condition & survival in tide pond)
378 (times, amount, & nature of, re diel vertical movements & illumination, young sockeye salmon in Babine L., B.C.)
387 (plant additives to stream substrates for enhancement of zoobenthic feed for salmonids)
S 1791 (of *Clione limacina* pteropod mollusc on *Spiratella*)
1795 (re chemoreception & physiology of fishes)
1811; 1812; 1813 (role of zooplankton in NE Pac. Ocean)
1812 (maturing salmon utilization of herbivore zooplankton, NE Pac. Ocean)
1817 (criticism & analysis of use of radioisotopes in measuring transfer of materials in aquatic feed chains)
1846 (feed chain re ecological subsystems in management of fisheries)
A 292 (used in Norwegian salmonid aquaculture)

Feedstuffs
T 338; 398 (1971 B.C. trawl landings of dogfish, etc., for animal feed)
S 1734 (dogfish meals as poultry ration supplements)
1735 (milk replacers re dairy calf performance)

Feldmeth, Carl Robert
J 30(11): 1755 (rainbow trout energy expenditure in small mountain stream)

Feller, Robert Jarman
J 30(7): 1003 (young pink & chum salmon feed preferences in Puget Sound, Wash.)

Fenitrothion (*see* Insecticides)

Fertility (*see* Fecundity)

Fertilization (*see also* Eutrophication; Nutrients, aquatic; Pollution; Production, primary)

J 30(10): 1415 (further studies of enrichment of a small lake by addition of phosphate & nitrate)
(10): 1547 (heterotrophic utilization of sucrose in an enriched lake)
S 1799 (nutrients for enrichment of sockeye salmon nursery lakes, B.C.)
1800 (stability of enriched aquatic ecosystems)

Fillets (*see also* Drip; Muscle; Quality of fishery products)
J 30(5): 685 (Na tripolyphosphate effect on thaw-drip & taste of, from various freshwater fishes)
(8): 1205 (protein denaturation in, re formaldehyde formation from trimethylamine oxide in gadoid fishes)
(8): 1246 (trimethylamine, dimethylamine, & extractable protein changes in iced & frozen Atl. gadoid fish)

Filters; Filtration
S 1780 (marine seston size separation by membrane & glass-fiber)
1818 (improved technique re microalgae electron microscopy)

Financing (*see* Economics)

Fingerlings (*see name* of adult fish, e.g. Trout; Salmon)

Fins; Fin rays (*see also* Marking; Tagging)
J 30(5): 607 (rays re white sucker age determination)
B 184: 24 (schematic diagrams of pectoral spines of Canadian catfishes; enumeration of fish dorsal & anal fin rays)

Firmness (of flesh) (*see also* Quality of fishery products)
T 363 (stored frozen Pac. halibut after freezing vs. chilling at sea)
S 1765 (processing effects on smoked goldeye)
1822 (of sockeye salmon canned after storage in ice vs. refrigerated sea water)

Fish farming (*see also* Culture; Nutrients, aquatic; Oyster; Sablefish)
S 1852 (Canadian projects)

Fish flour (*see* Fish protein concentrate)

Fish meal (*see* Fishmeal; Fish protein concentrate)

Fish oils (*see* Acids, fatty; Lipids; Oils and fats)

Fish processing (*see* names of commercial fishes; *also* next heading; *also* types of processing and products, e.g. Canning; Cooking; Fillets; Fish protein concentrate; Fishmeal; Freezing; Ice; Oils and fats; Preservatives; Refrigeration; Smoking)

Fish processing wastes (*see also* Fish protein concentrate)
J 30(9): 1385 (mussel & periwinkle shell growth rate as indicator of pollution from wastewater)
(11): 1745 (use of plastein reaction in recovering nutritional protein from)
T 343; 366 (effluent clarification by chemical treatment & air flotation; analysis of recoverable sludge)

Fish protein concentrate
J 30(9): 1404 (correction to article on removal of mercury from, in J 29(12): 1777)
(11): 1745 (use of pepsin hydrolysis to recover nutritional polypeptides as plastein from fish wastes)
(11): 1760 (inability to detect *Clostridium botulinum* spores in)
S 1734 (from dogfish re poultry ration supplement)
1735 (from Atl. herring re milk replacer in dairy calf rations)

Fisheries (*see also* Angling; Aquaculture; Catch effort; Catches; Culture; Economics; Exploitation; Gear, fishing; Groundfishes; Management; Stocks; Surveys; Yield; *also* names of commercial fishes, marine mammals, shellfishes, etc.)
J 30(2): 249 (comparison of fishing strategies: Nfld. offshore fishery; B.C. inshore salmon fishery; Cornwall (England) oyster fishery)
(3): 409 (linear regressions re data from fisheries research)
(4): 509 (optimum economic yield of a fishery, given a variable output price)
(4): 554 (whitefishes, Colville R., Alaska)
(7): 939 (delay-differential equation models for population biomass)
(7): 998 (simple dynamic pool vs. surplus production mathematical models, re yield from)
(12,2): entire issue (proceedings of FAO Technical Conference on Fisheries Management & Development (Vancouver, B.C., Feb. 13–23, 1973); *see* separate index in that issue)
B 180 (many of 325 species of B.C. marine fishes: methods, catches, utilizations)
183 (Russian–English dictionary for students of fisheries & aquatic biology)
184 (many of 181 species of Canadian freshwater fishes: methods, catches, utilizations)
CJG 19 (green sea urchin, Canadian Atl.)
20 (past, present, & future of Gulf of St. Lawrence redfish)
T 338; 398 (B.C. groundfish & other related commercial, 1971; 1972)
339 (length, age, & weight in SW Nfld. winter herring commercial)
340 (length & age in Hecate Strait rock sole commercial)
350 (feasibility of commercial, for euphausids in Gulf of St. Lawrence)
400 (red sea urchin as possible B.C.)
S 1756 (research & management)
1840 (American shad: Canadian fishery & its restoration (as of 1912))
1846 (re ecological subsystems)
A 285 (Central American, for Penaeus shrimps (in Spanish & English))
289 (biological considerations of, in Canadian coastal zones)
294 (ringed seal, by E Canadian arctic Eskimos)

Fisheries Research Board of Canada (FRB) (*see also* next heading; *also* Publications, Fisheries Research Board of Canada)
AR 1972 (Annual Report: Board's purpose, research highlights, & management activities; list of Board members, Executive Committee, & officers; list of Board establishments & their directors (in English & French))
R 1971-1972 (Biennial Review: Board activities and organization; review of investigations by establishments; list of Board members & officers; list of establishments & their professional staffs by research functions; lists of publications & reports; index to professional staff by establishments)
MSP 17 (brief brochure on activities of FRB Pacific Environment Institute, West Vancouver, B.C.)
19 (brief brochure on activities of FRB Halifax, N.S., laboratory (in English & French))
20 (résumé of FRB history, 1898–1973 (in English & French))
S 1748 (research activities re chemistry & biochemistry of aquatic life; products; pollution)

Fisheries Research Board of Canada Experimental Lakes Area, northwestern Ontario
J 30(10): 1409, 1415, 1469, 1475, 1485, 1491, 1501, 1511, 1537, 1547 (a series of papers dealing with various physical, chemical, & biological limnological aspects, particularly those of "lake 227"; *see also* 1441, 1447, & 1525 for additional papers bearing indirectly on these lakes)
T 337 (phytoplankton species composition & distribution in 35 of the lakes)
S 1744 (flux rate of major ions from sediments into the waters)
1773 (role of atmospheric CO_2 in maintaining phytoplankton standing crops)

Fishery, sport (*see* Angling; *also* names of certain sport fishes, e.g. Salmon; Trout)

Fishery products and by-products (*see* types of processing and products, e.g. Canning; Cooking; Fillets; Freezing; Ice; Preservatives; Refrigeration; Smoking; *also* Fish protein concentrate; Fishmeal; Oils and fats; *also* names of commercial fishes)

Fishes (of Canada) (for fishes and fisheries of many other countries *see* the special issue J 30(12,2) and its included index)
B 155(F) (French edition (530 p.) of Bulletin 155 on Fishes of the Atlantic Coast of Canada (has its own index; also indexed in Bulletin 164))
180 (Pacific fishes (marine & anadromous of B.C.) (740 p.; has its own index; species also indexed in 1973 MSP 18; only topics indexed in present index))
184 (freshwater (980 p.; 181 species; has its own index; species & topics also indexed in present index))

Fishes, freshwater (*see* Freshwater fishes, *also* names of species; *also* separate index in J 30(12,2))

Fishes, lists of (not indexed individually)
T 393 (37 demersal species taken in experimental trawling off Point Grey, B.C.)
398 (catch & effort of commercial B.C. groundfish fishery, 1972)

Fishes, marine (*see* names of species, *also* separate index in J 30(12,2); *also* B 180 for those of B.C.)

Fishing, exploratory (*see also* contents and index in J 30(12, 2) special issue)
T 338; 345; 398 (re 1971 & 1972 B.C. groundfish fishery)

Fishing effort (*see* Abundance; Catches; Catchability)

Fishing gear and methods (*see* Gear, fishing)

Fishmeal (*see also* Fish protein concentrate)
T 343; 366 (solids recoverable from clarification of fish reduction wastewaters)
S 1734 (dogfish: protein & energy values as poultry ration supplement)

Flagellates (*see Gonyaulax*; Phytoflagellates)

Flagfish (*Jordanella floridae*)
J 30(2): 329 (short reproductive period advantageous for rapid chronic toxicity bioassays)

Flannagan, John Fullan
J 30(2): 287 (improved Ekman-type grab)
T 354 (flotation media for sorting benthos)

Flatfishes, Northeast Pacific Ocean (*see also* Groundfishes (Canadian Pacific); *also* names of species)
T 338; 398 (1971 B.C. groundfish & related fisheries)

Flatfishes, Northwest Atlantic Ocean (*see also* names of species)
J 30(1): 17 (role in feed of NW Atl. harp seals)

Flavor (*see also* Quality of fishery products)
J 30(1): 63 (of Pac. halibut & chinook salmon after brine- vs. plate-freezing of fish at sea)
(5): 685 (Na tripolyphosphate effect on fillets of various freshwater fishes)
(8): 1235 (masking or neutralizing muddy, in rainbow trout, by smoking & canning)
T 363 (tests on stored frozen Pac. halibut after chilling vs. freezing at sea)

Fleming, Allister Melville
J 30(1): 111 (obituary of Wallace Allison MacCallum)

Flesh (*see also* Fillets; Muscle; Quality of fishery products)
A 292 (use of shrimp in trout aquaculture feed to enhance pink color of flesh)

Fletcher Garth Leonardo

S 1760 (testosterone & its glucuronide in thorny skate testicular & peripheral plasma)

Flies (true) (*see* Diptera)

Floatation (*see* Flotation)

Flora, freshwater (*see also* Algae; Benthos; Diatoms; Phytoplankton; Plankton)
J 30(2): 167 (of industrialized portion of Ottawa R. near Ottawa, Ont., & Hull, Que.)

Flora, marine (*see* Algae; Seaweeds)

Florida, USA
J 30(7): 1009 (age, growth, & maturity of bottlenosed dolphin in NE)

Flotation
T 343; 366 (fish processing plant effluent clarification by air flotation)
354 (media for sorting benthos)

Flounder, arrowtooth (*Atheresthes stomias*) (turbot)
T 345 (catches in experimental trawling off SW Vancouver Is., Sept. 1972)

Flounder, smooth (*Liopsetta putnami*)
B 184: 11 (observed in Canadian fresh or brackish waters)

Flounder, southern (*Paralichthys lethostigma*)
J 30(2): 275 (As, Cd, Cu, & Zn content of muscle, SE coast USA)

Flounder, starry (*Platichthys stellatus*)
B 184: 11 (observed in Canadian fresh or brackish waters)
T 338 (B.C. landings 1961–71 & additional 1971 data)
361 (alimentary tract morphology re feed habits)
398 (1972 B.C. commercial fishery catch & effort statistics)

Flounder, winter (*Pseudopleuronectes americanus*)
J 30(9): 1374 (intertidal feeding & stomach contents, Bay of Fundy)
(12,I): 1894 (DDT & dieldrin effects on egg development)
B 184: 11 (observed in Canadian fresh or brackish waters)
S 1805 (elemental phosphorus effect on blood)

Flounder, witch (*Glyptocephalus cynoglossus*)
T 402 (re fish assemblages)

Flounder, yellowtail (*Limanda ferruginea*)
T 402 (re fish assemblages)

Flow (of energy) (*see also* Bioenergetics)
S 1793 (energy flow & productivity of organisms in R. Thames, Eng.)

Flow (of water) (*see also* Currents; Tides; Transport, mass)
J 30(6): 856 (seasonal river discharge re local landings of Atl. halibut & lobster, Gulf of St. Lawrence)
(8): 1249 (hatchery water velocity, re Pac. salmon egg yolk malformation)

Flukes (*see* Trematoda)

Fluorescence
J 30(8): 1039 (spectroscopic detection of petroleum hydrocarbon traces in sea water)

Fly (*see* Flies)

Flyingfish, blackwing (*Hirundichthys rondeleti*)
J 30(12,I): 1911 (new to Canadian Atl.)

Foda, Ahmed
J 30(3): 467 (Atl. salmon blood hematocrit & hemoglobin changes from furunculosis disease)

Fontaine, Yves-Alain
S 1784 (gonadotropin activities on goldfish ovary adenyl cyclase)

Fontaine-Bertrand, Elizabeth
S 1784 (gonadotropin activities on goldfish ovary adenyl cyclase)

Food (for man) *see also* Quality of fishery products; *also* types of fishery products; *see also* special issue J 30(12,2) on world management and development of fisheries)
B 155(F) (French edition of Bulletin 155 on Canadian Atlantic marine fishes)
180 (many of 325 species of B.C. marine fishes)
184 (many of 181 species of Canadian freshwater fishes)

Food (for other than man) (*see* Bioenergetics; Culture; Diet; Feed; Feedstuffs; Predation; Production, primary; Production, secondary; Ration)

Food and Agriculture Organization of the United Nations (FAO)
J 30(12,2): entire issue (proceedings of Technical Conference on Fishery Management and Development (Vancouver, B.C., Feb. 13–23, 1973); *see* separate index in that issue)

Foraminifera
J 30(7): 867(F) (seasonal settling, St. Lawrence R. estuary)

Forecasting; Prediction
J 30(9): 1337 (lobster molting)

Foreign (other than Canadian) fisheries (*see also* Fisheries)
J 30(12,2): (special issue on proceedings of FAO Technical Conference on Fisheries Management and Development)

Forestry (*see* Debris; Detritus; Logging; Pollution; Pulpmill effluent)

Formaldehyde
J 30(1): 91 (determination in fish muscle)
(8): 1205 (production from trimethylamine oxide in gadoid fishes, & its effect on salt-extractable proteins & denaturation in frozen fillets therefrom)
B 184: 15 (for preparing freshwater fish specimens for identification)
S 1847 (formation in stored fish)

Formic acid
S 1740 (vapor application in gas-liquid chromatography of volatile free fatty acids)

Forrester, Clifton Roger
T 338 (1971 B.C. groundfish fishery & related fisheries)

Fovia (*see* Turbellaria)

Fragilaria (*see* Photosynthesis)

Frair, Wayne
S 1741 (body temperature of a warm turtle from cold water)

Francis, Vija A.
S 1817 (criticism & theory of use of radioisotopes to measure transfer of materials in aquatic feed chains)

Frank, Richard
J 30(3): 471 (mercury, DDT, & PCB residues in Bay of Fundy & Gulf of Maine harbour seals)
J (8): 1053 (DDT & its metabolite residues in Canadian Atl. coast harp seals)

Franzin, William Gilbert
J 30(2): 187 (genetics of a dehydrogenase isozyme in lake whitefish white muscle)

Fraser River, B.C.
J 30(7): 1014 (mercury & other heavy metals in benthic organisms of mudflats)
(9): 1309 (tracking mature pink salmon coastal movements ultrasonically)
(11): 1619 (behavior of chlorinated hydrocarbons in water & sediments of)
S 1839 (migration routes & rates of migration from Puget Sound, Wash., to (as of 1919))

FRB (*see* Fisheries Research Board of Canada; Publications, Fisheries Research Board of Canada)

Freeman, Harry Cleveland
J 30(3): 454 (American eel mercury & methylmercury content, N.S.)
(8): 1251 (sampling swordfish edible muscle for total mercury analysis)

Freeman, Kenneth
T 352 (spatial & seasonal distribution of coliforms in Bedford Basin, N.S.)

Freese, Manfred
T 346 (instrumentation & mathematics of parasite detection in fish by ultrasonics)
374 (electromagnetic jigger & gear locator for under-ice fishery operations)

Freezing (*see also* Drip; Refrigeration; Thawing; *also* Quality of fishery products)
J 30(1): 45 (effects on hexose monophosphate accumulation & related metabolic changes in sea scallop adductor muscle)
(1): 63, 71, 79 (effects of brine- vs. plate-freezing at sea on quality of Pac. halibut & chinook salmon)
B 184: 15 (for preparing & forwarding freshwater fish specimens for identification)
T 363 (vs. chilling Pac. halibut at sea re keeping quality of stored frozen product)
S 1763 (hypoxanthine & nucleotide levels in plate-frozen Pac. halibut)
1821 (effect of rate, on sockeye salmon stored partially frozen before canning)
1847 (new technical research on frozen fish)
A 285 (of shrimp on Central American shrimp trawlers (in Spanish & English))
287 (brine-spray system for Central American small tuna seiners (in Spanish & English))

Freshness, of fishery products (*see* Quality of fishery products)

Freshwater fishes (*see also* names of species)
B 184 (full description of 181 species of Canadian)
S 1844 (specific problems in quality assessment of)

Fried, Stephen Mark
J 30(4): 563 (occurrence of shortnose sturgeon, an endangered species; correction on J 30(8): 1257)

Friedlaender, Michael
J 30(11): 1629 (Beverton-Holt model of commercial fishery: optimal dynamics)

Frieleia halli (brachiopod)
S 1759 (description of B.C.)

Fromm, Paul Oliver
J 30(9): 1293; (10): 1575 (methylmercuric chloride vs. mercuric chloride uptake rate by rainbow trout principally through gills)

Frost, Violet Elizabeth
J 30(10): 1415 (further results of phosphate & nitrate enrichment on eutrophication of a lake in FRB Experimental Lakes Area (ELA), NW Ont.)
(10): 1511 (epilithiphyton production in 2 ELA lakes)

Fry (*see* name of mature fish, particularly Salmon)

Fuel oil (*see* Oils, petroleum; Pollution)

Fukuda, Y.
J 30(12,2): 1986 (gap between theory and practice)

Fulton, John Douglas
J 30(4): 551 (*Aglantha digitale* diel migration & breeding cycle)
(6): 811 (*Calanus plumchrus* life history in Strait of Georgia)

Fulton Channel, B.C. (*see* Babine Lake, B.C.)

Fundulus diaphanus (*see* Killifish, banded)
heteroclitus (*see* Mummichog)
notatus (*see* Topminnow, blackstripe)

Fundy, Bay of (*see also* Maine, Gulf of; Oceanography, northwest Atlantic coastal)
J 30(3): 471 (mercury, DDT, & PCB residues in Atl. harbour seals)
(9): 1374 (winter flounder intertidal feeding & stomach contents)

Fungi (*see also* next heading)
J 30(7): 994 (*Scolecobasidium humicola* pathogenic to coho salmon)
(11): 1738 (incrustations of *Phoma fimeti* microfungus on snow crab carapace)

Fungicides
J 30(4): 499 (sodium pentachlorophenate effects on underyearling sockeye salmon)
(12,1): 1811 (Captan toxicity to fathead minnow, bluegill, & brook trout)

Funk, James David
S 1770; 1833 (inducing precocious sexual maturity in pink salmon)

Funk, Kaye
J 30(5): 702 (cooking effects on chlorinated hydrocarbon residues in L. Michigan coho & chinook salmon flesh)

Fur-bearing animals (*see* Sea otter; Seal)

Furunculosis (fish disease from *Aeromonas salmonicida*)
J 30(3): 467 (changes in Atl. salmon hematocrit & hemoglobin as result of)
S 1823 (arginine catabolism & arginine dihydrolase re *A. salmonicida*)

Fingerlings (*see name* of adult fish, e.g. Trout; Salmon)

Fins; Fin rays (*see also* Marking; Tagging)
J 30(5): 607 (rays re white sucker age determination)
B 184: 24 (schematic diagrams of pectoral spines of Canadian catfishes; enumeration of fish dorsal & anal fin rays)

G

Gadus macrocephalus (*see* Cod, Pacific)
morhua (*see* Cod, Atlantic)

Gaetanus intermedius (*see* Calanoida)

Gaffkemia (lobster infection with *Gaffkya homari* bacterial micrococcus)
S 1855 (paradoxical effects of salinity reductions on)

Gambusia affinis (*see* Mosquitofish)

Gar, longnose (*Lepisosteus osseus*)
B 184: 105 (full description, etc., in Canada)

Gar, spotted (*Lepisosteus oculatus*)
B 184: 103 (full description, etc., in Canada)

Gardner, George Robert
J 30(3): 363 (copper-induced lesions in mummichog & Atl. silverside organs)

Garrod, David John
J 30(12,2): 1977 (multiple resources management)

Gas exchange (in natural waters) (*see also* Carbon; Carbon dioxide; Carbonate; Oxygen, dissolved)
J 30(9): 1317 (between pelagic & benthic communities, & sediments)
(10): 1475 (determination in small lake by radon method)
(10): 1491 (vertical eddy diffusion studies in thermocline of small lake)
S 1773 (atmospheric CO_2 role re phytoplankton production in a small lake)

Gaskin, David Edward
J 30(3): 471 (mercury, DDT, & PCB residues in Bay of Fundy & Gulf of Maine harbour seals)

Gaspereau (*see* Alewife)

Gasterosteus aculeatus (*see* Stickleback, threespine)
wheatlandi (*see* Stickleback, blackspotted)

Gastropoda (*see also* Periwinkle; *also* subclassifications of, and names of species)
J 30(2): 167 (abundance, of 19 species in an industrialized portion of Ottawa R.)
(7): 867(F) (seasonal settling of 5 species, St. Lawrence R. estuary)
T 342 (in bottom fauna survey of certain Okanagan Valley lakes, B.C.)

Gatz, Arthur John, Jr.
J 30(2): 325 (swimming speed & stamina of fish re red & white muscle function)

Gaufin, Arden Rupert
S 1764 (Montana stoneflies)

Gazetteer
B 180: 645 (for latitude & longitude of place names where B.C. marine fishes described in text occur)

Gear, fishing (*see also* Apparatus; Fisheries; Nets; Trapnet; Traps)
CJG 19 (sea urchin, Can. Atl.)
T 374 (electromagnetic device for locating jigger & other gear under ice)
400 (sea urchin, B.C.)
A 294 (ringed seal, by E Canadian arctic Eskimos)

Gee, John Henry
J 30(3): 357 (diet, spawning, & environment of creek chub, Mink R., Man.)

Geen, Glen Howard
J 30(2): 313 (submersible spectroradiometer & data acquisition system)

Geiger, Shirley Evelyn
T 363 (frozen Pac. halibut keeping quality re prefreezing storage)
S 1821; 1822 (quality of sockeye salmon canned after chilled or partially frozen storage)

Gelatin
J 30(7): 1017 (liver changes in rainbow trout fed)

Genera
J 30(8): 1155 (emendment of *Lyrodiscus* monogenetic trematodes)
(11): 1729 (assignment of *Raja richardsoni* deepwater skate to *Bathyraja*)
S 1783 (new genus, *Impexus*, of Lernaeoceridae copepod; key to Lernaeoceridae genera)

Genes (*see* Genetics)

Genetics (see also Chromosomes; Cytology; Phenotypes; Polymorphism)
J 30(1): 137 (genetic analysis of steelhead trout hatching time)
(2): 187 (of glycerol-3-phosphate dehydrogenase isozyme in lake whitefish white muscle)
(3): 401 (re temperature tolerance of splake)
(12,1): 1890 (re chinook salmon open-jaw syndrome)

Geochemistry
B 182 (Gulf of St. Lawrence sediments)
S 1747 (diastereoisomerism of marine isoprenoid fatty acids re organic)
1772 (stereochemistry of modern shark liver pristane re that from ancient shale)
A 274 (review of book on microbial)

Geology (*see also* Glaciation; Limnology)
B 182 (Gulf of St. Lawrence & environs, re Gulf morphology & sediments)
S 1850 (Gulf of St. Lawrence marine)

Geomagnetism
J 30(10): 1581 (apparatus for simulating motion of animals through field)

Georganas, Nicholaos Demetrios
J 30(4): 576 (optimal control theory applied to a dynamic aquatic ecosystem)

George, Puthiaparampil Chacko
J 30(12,2): 2172 (rationalization of small-scale fisheries in India)

Georgia, Strait of, B.C. (*see also* Fraser River; Howe Sound, B.C.; Oceanography, northeast Pacific coastal; Saanich Inlet)
J 30(2): 215 (seasonal cycle of vitamin B_{12} & other nutrients)
(4): 565 (river lamprey parasitism on young Pac. salmons & herring)
(11): 1619 (behavior of chlorinated hydrocarbons in waters & their sediments)
T 338 (1971 B.C. groundfish & related fisheries)
S 1811 (microzooplankton)
A 280 (comparative studies with Gulf of Alaska & Gulf of St. Lawrence)
281 (pollution effects on shore life)
290 (pollution problems in)

Gerke, Robert John
J 30(7): 1003 (young pink & chum salmon feed preferences, Puget Sound, Wash.)

Germain, Paul
S 1794 (thick-billed murre mortality in W Greenland salmon fishery)

Gertenbach, Luke Pieter Dormehl
J 30(12,2): 2077 (South African license experience)

Gestation (*see* Reproduction)

Gibney, Kelly Blair
S 1778 (chromatography & mass spectrometry of methylated alditol acetates)

Gilhen, John
J 30(12,1): 1911 (4 fishes new to the Canadian Atlantic)

Gilhousen, Philip
J 30(4): 565 (river lamprey parasitism on young Pac. salmons & herring)

Gillnets and netting (*see* Nets)

Gills (*see also* Respiration)
J 30(1): 99 (irrigation re pressure, in rainbow trout)
(2): 275 (Cd, Cu, Hg, & Zn content of silky shark, SE coast USA)
(2): 323 (Na nitrilotriacetate effect on fathead minnow & bluegill)
(3): 395 (little effect of kraft pulpmill effluent on coho salmon)

(4): 583 (acute & long-term copper accumulation in brown bullhead)
(6): 841 (molybdenum uptake in rainbow trout & kokanee)
(9): 1293; (10): 1575 (principal entry of mercurials into organs & blood of rainbow trout)
(10): 1553 (copper & cadmium effects on lactate oxidation by rainbow trout)
(10): 1575 (electron microprobe gill tissue scans for mercury uptake by trout)
(12,I): 1885 (gill raker counts of Bering cisco vs. Arctic cisco)
S 1805; 1806 (elemental phosphorus effects on Atl. herring)

Ginetz, Ronald Mark John
J 30(2): 229 (rainbow trout choice of colors of feed)

Glaciation
J 30(10): 1586 (postglacial colonization of Matamek R., Que., by fishes)
B 182 (re history of Gulf of St. Lawrence sediments)
S 1850 (re Gulf of St. Lawrence marine geology)

Glass
J 30(7): 1021 (one-way, for assessing fish visual discrimination of feed)

Glass, Norman Ralph
J 30(3): 379 (sockeye salmon metabolic rates & critical swimming speeds re size & temperature)

Globicephala melaena (*see* Whale, northern pilot)
sp. (*see* Whales)

Glooschenko, Walter Arthur
T 351 (chlorophyll *a* distribution in lakes Ontario & Erie surface waters, 1970)

Glossary (*see also* Dictionary)
B 180: 659 (terms used in describing B.C. marine fishes)
184: 850 (terms used in describing Canadian freshwater fishes)

Glucans
S 1750; 1820 (chemical & physical studies of *Rhodymenia pertusa* red algae)
1804 (intracellular α-D-glucan from *Clostridium botulinum*)
1820 (PMR & chemical studies of permethylated derivatives of algal)

Glucose (*see also* Glucans)
J 30(10): 1547 (heterotrophic utilization as carbon source when added to lake)

Glycera dibranchiata (*see* Bloodworm)

Glycerides (*see* Acids, fatty; Lipids; Oils and fats)

Glycerol
J 30(2): 187 (genetics of 3-phosphate dehydrogenase isozyme in lake whitefish white muscle)

Glycogen
J 30(12,I): 1825 (content (as glucose) of young butter clams fed 3 species of algae)

Glyptocephalus cynoglossus (*see* Flounder, witch)
zachirus (*see* Sole, rex)

Goldeneye (*see* Ducks)

Goldeye (*Hiodon alosoides*)
B 184: 327 (full description, etc., in Canada)
S 1765 (processing effects on texture)

Goldfish (*Carassius auratus*)
J 30(2): 317 (color of, not significant in predation by northern pike)
(6): 725 (interaction of temperature & copper ions re locomotor behavior)
(8): 1141 (lens accommodative movements re feeding behavior)
B 184: 389 (full description, etc., in Canada)
S 1757 (electrical responses of cerebellum)
1777 (effects of cooling on central nervous system electrical responses)
1784 (gonadotropin effects on ovary adenyl cyclase)

Gonadotropin (*see* Gonads; Pituitary)

Gonads (*see also* Eggs; Hormones; Maturity; Ovary; Spawning; Testes)
J 30(2): 275 (Cd, Cu, Hg, & Zn content, in silky shark, SE coast USA)
(6): 841 (molybdenum uptake in rainbow trout & kokanee)
(7): 905 (temperature effects on responses to carp pituitary extract & a hormone, in green sunfish)
(7): 975 (temperature requirements for maturation of brook trout)
CJG 19 (commercial utilization of sea urchin, Canadian Atl.)
T 400 (commercial utilization of sea urchin, B.C.)
S 1732 (gonadotropin preparation from chinook salmon pituitary glands)
1770; 1833 (gonadotropin acceleration of pink salmon sexual maturity)
1784 (gonadotropin activities on goldfish ovary adenyl cyclase)
1785 (salmon pituitary gonadotropin induction of ayu ovulation)

Gonostoma elongatum (*see* Anglemouth, longtooth)

Gonyaulax (causative organism of paralytic shellfish poisoning principally through medium of clams and mussels)
J 30(2): 143 (*G. tamarensis* growth & cell-size distribution in batch & dialysis culture)
(9): 1363 (probable cause of 1972 bloom of *G. tamarensis* in Gulf of Maine)

Goosefish (*Lophius americanus*)
T 402 (re fish assemblages)

Gopalakrishnan, Venkitachalam
J 30(12,2):2341 (development of brackish-water fish & shrimp culture in India)

Gordon, Donald Collingwood, Jr.
J 30(8): 1039 (detecting petroleum hydrocarbon traces in sea water)
(11): 1611 (accommodation of some fuel oils in sea water)

Gorgonian (*see* Anthozoa)

Gorrill, Albert David Lincoln
S 1735 (milk, fishmeal, & soybean meal proteins as milk replacers in calf rations)

Grab
J 30(2): 287 (an improved Ekman-type, for sampling freshwater macrobenthos)

Grading (*see* Firmness; Quality of fishery products)

Grain, cereal (*see* Wheat)

Grain, particulate (*see* Counting; Matter, particulate; Sediments; Size)

Grampus griseus (*see* Dolphin, Risso's)

Grand Bank, off Newfoundland (*see also* International Commission for the Northwest Atlantic Fisheries; Newfoundland)
J 30(9): 1261 (areal, seasonal, & calorific variations of American plaice feed components)

Grant, Blake Francis
J 30(1): 31 (endrin pesticide toxicology in rainbow trout)

Gratzek, John Bernard
J 30(11): 1641 (brown bullhead cell microculture for use in channel catfish virus & antibody quantitation)

Gravel (*see also* Spawning)
B 182 (re Gulf of St. Lawrence detritus)
T 364; 405 (evaluation of incubators for pink salmon fry, & results at adult stage)
387 (addition of vegetable materials to streambed, re zoobenthos culture)

Gray, Colin Butler James
J 30(3): 345 (integrated quantitative determination of planktonic & sedimentary chlorophylls)

Gray, Ronald Walter
J 30(7): 985 (chemical basis for hatchery-reared vs. wild Atl. salmon homing to hatchery vs. nearby hydroelectric dam)

Grayling, Arctic (*Thymallus arcticus*)
B 184: 300 (full description, etc., in Canada)

Grazing (*see also* Feed)
J 30(1): 7 (of lamprey larvae on algae)
S 1817 (criticism & theory of use of radioisotopes to measure, in aquatic feed chains)

Great Central Lake, B.C.
S 1799; 1800 (nutrients for enrichment, re sockeye salmon fry growth)
1834 (nutrient enrichment effect on algal photosynthesis)

Great Lakes, Canada and USA (*see also* Erie, Lake; Michigan, Lake; Ontario, Lake)
J 30(8): 1155 (new & previously described monogenean trematode parasites from fishes)
B 184 (illustrated descriptions, etc., of fishes)

Great Slave Lake, N.W.T.
T 304 (life history & distribution of Arctic lamprey in, and nearby region)

Green, John Marshall
J 30(1): 129 (evidence for homing in mosshead sculpin)

Green, Roger Harrison
J 30(9): 1345 (*Macoma balthica* clam growth & mortality in Hudson Bay)

Grey (*see* Gray)

Grilse (*see* adult form of fish, e.g. Salmon, Atlantic)

Groundfishes (Canadian Atlantic) (*see also* International Commission for the Northwest Atlantic Fisheries; *also* names of species)
J 30(1): 17 (role in feed of NW Atl. harp seal)

Groundfishes (Canadian Pacific) (*see also* names of species)
T 338 (1971 B.C. fishery & some aspects of related fisheries)
345 (catches, etc., during *G.B. Reed* experimental cruise off SW Vancouver Is., Sept. 1972)
398 (catch & effort statistics of B.C. fishery, 1972)

Groundwater
S 1853 (pollution)

Growth; Growth rate (*see also* Age; Development; Length; Size; Weight)
J 30(1): 1 (sockeye salmon fry, after starvation & subsequent feeding)
(1): 17 (re NW Atl. harp seal feeding habits)
(2): 143 (& cell-size distribution of cultured marine planktonic algae)
(2): 195 (nucleic acids ratio as measure of long-term growth in fish populations)
(2): 235 (Pac. ocean perch, NW Pac. Ocean)
(2): 299 (re age & maturity of round whitefish, Leaf R., Ungava, Que.)

(3): 443 (parasitic gut nematode effects on young rainbow trout)
(3): 457 (& age of inconnu, Alaska)
(4): 499 (sodium pentachlorophenate effect on underyearling sockeye salmon)
(5): 607 (of white sucker populations re maturity size)
(5): 623 (efficiency re fish feeding aggression)
(6): 811 (*Calanus plumchrus* in Strait of Georgia)
(7): 991 (effects of brief temperature increases on American oyster larvae)
(7): 1009 (re age & maturity, bottlenosed dolphin, Florida)
(8): 1065 (white whales, W Hudson Bay)
(8): 1099 (testosterone derivative for promoting, in young coho & chinook salmon)
(8): 1147 (effect of lime-neutralized iron hydroxide suspensions on fathead minnow)
(8): 1179 (re ninespine stickleback energy budget in an Alaskan arctic lake)
(8): 1191 (rate, of sockeye salmon fry re temperature & feeding regime)
(8): 1215 (Arctic char, Canning R., Alaska)
(8): 1221 (SE L. Michigan trout-perch)
(8): 1226 (re temperature requirements of young smallmouth bass)
(9): 1327 (walleye, re feed consumption & conversion efficiency)
(9): 1345 (*Macoma balthica* clam in Hudson Bay)
(9): 1385 (rate of blue mussel & common periwinkle, as indicator of pollution)
(11): 1683 (divergent, of lake whitefish in 2 Alta. lakes)
(12,1): 1825 (rates of young butter clams fed 3 species of algae)
B 181 (ringed seal)
T 370 (review of nutrient requirements for marine phytoplankton)
382 (re survival of matched wild vs. domestic rainbow trout plantings in prairie pothole lakes; possible effectiveness of cross breeding of strains)
S 1738 (temperature effect on horse clam larval)
1739 (& maturity of horse clam in S B.C.)
1790 (green sea urchin)
1791 (*Clione limacina* pteropod mollusc)
1799 (young sockeye salmon in an enriched nursery lake, B.C.)

Gruchy, Charles George
J 30(5): 683 (first Canadian record of stoneroller & blackstripe topminnow)
(9): 1379 (first Canadian records of silver shiner)

Gruchy, Iola Muriel
J 30(5): 683 (first Canadian record of stoneroller & blackstripe topminnow)
(9): 1379 (first Canadian records of silver shiner)
T 368 (bibliography of the smelt family (over 1800 titles, 1553–1972))

Guitarfish, Atlantic (*Rhinobatos lentiginosus*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, liver, stomach, & egg, SE coast USA)

Gulf of ... (*see* name of gulf)

Gulland, John Alan
J 30(12,2): 2042 (fishery management economics)
(12,2): 2226 (stock assessment of Peruvian anchovy fishery)
(12,2): 2264 (management & development of E central Atl. fisheries)
(12,2): 2456 (relation of distant water fisheries to management & development)
S 1754 (instability of ocean populations)

Guppy (*Poecilia reticulata*)
B 184: 10 (established in thermal basin, Banff National Park, Alta.)

Gustatory responses (*see* Taste; *also* Flavor; Quality of fishery products)

H

Habitat (*see also* Behavior; Environment; Sediments)
T 402 (preferences, re method for compression of species association data)
A 291 (of some Canadian coastal aquatic mammals)

Habits (*see* Behavior; Diel habits; Feed; Migration; etc.)

Haddock (*Melanogrammus aeglefinus*)
T 361 (alimentary tract morphology re feed habits)
402 (re fish assemblages)

Haem... (relating to blood constituents: *see* Hema...; Hemo...)

Haines, Terry Alan
J 30(2): 195 (RNA–DNA ratio as measure of long-term growth in fish populations)

Hair
J 30(6): 843 (mercury in Atl. seals)

Hake, Pacific (*Merluccius productus*)
T 345 (catches during experimental cruise off SW Vancouver Is., Sept. 1972)

Hake, silver (*Merluccius bilinearis*)
J 30(8): 1205 (formaldehyde formation from trimethylamine oxide in, & its effect on salt-extractable proteins & denaturation of frozen fillets therefrom)
(8): 1246 (trimethylamine, dimethylamine, & extractable protein changes in iced & frozen fillets)
T 402 (re fish assemblages)

Hake, white (*Urophycis tenuis*)
T 361 (alimentary tract morphology re feed habits)

402 (re fish assemblages)

Halibut, Atlantic (*Hippoglossus hippoglossus*)
J 30(6): 856 (seasonal river discharge re local landings, Gulf of St. Lawrence)
(8): 1205 (lack of dimethylamine or formaldehyde formation in, re salt-extractable protein formation in muscle)
T 402 (re fish assemblages)

Halibut, Pacific (*Hippoglossus stenolepis*)
J 30(1): 63, 71, 79 (effects of brine- & plate-freezing at sea on quality)
(8): 1255 (sexual ripening in captivity)
T 363 (keeping quality of frozen, re prefreezing storage)
S 1763 (hypoxanthine levels in chilled & frozen)

Halichoerus grypus (*see* Seal, gray)

Haliotis kamtschatkana (*see* Abalone)

Hall, James Dane
J 30(5): 623 (evaluation of method for estimating fish feed consumption rates)

Halocline (*see also* Oceanography headings)
T 347 (re mass transport of waters in Alberni Inlet, B.C.)

Halver, John Emil
J 30(12,I): 1867 (salinity influence on rainbow trout protein requirements)

Hamilton, Robert Duncan
J 30(7): 1026 (nitrilotriacetate discharge from 2 sewage treatment facilities, Winnipeg, Man.)
(10): 1537 (adenosine triphosphate concentrations in particulate material of 2 lakes in FRB Experimental Lakes Area (ELA), NW Ont.)
(10): 1547 (heterotropic utilization of sucrose in an ELA lake)
A 274 (review of book on microbial biogeochemistry)

Hamley, John Matthews
J 30(6): 817 (direct estimates of gillnet selectivity to walleye)

Hamlisch, Robert
J 30(12,2): 2276 (fisheries planning for E Central Atl. countries)

Hammerhead, scalloped (*Sphyrna lewini*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, stomach, liver, & intestine, SE coast USA)

Hampel, Gotthilf
J 30(12,2): 2184 (productivity of oceans)

Handling
J 30(1): 105 (effects on American shad oxygen requirements)

Hansen, Roy Penrose
S 1767 (methyl-branched fatty acids from ruminant (sheep) fats)

Hara, Toshaiki J.
J 30(2): 283 (stimulatory apparatus for olfactory activity in fishes)
S 1795 (chemoreception in fish physiology)
1856 (olfactory response to amino acids by whitefish, brook & rainbow trout)

Hardy, Larry Hale
J 30(9): 1287 (metallic contaminants in bluefish & blue antimora muscle re total body weights)

Hare, Gerrard Murdock
J 30(1): 128 (modified stakenet for collecting migrating Atl. salmon smolts)

Hargrave, Barry Thomas
J 30(2): 309 (^{14}C vs. dissolved oxygen methods for measuring benthic microalgal primary production)
(9): 1317 (coupling carbon flow through pelagic & benthic communities)
(12,I): 1789 (crawling & respiration rates as indices of sublethal effects of bunker oil & a dispersant on a marine snail)

Harling, Wayne Robert
T 345 (catches during FRB experimental groundfish cruise off SW Vancouver Is., Sept. 1972)

Harpacticoida
J 30(7): 867(F) (seasonal settling in St. Lawrence R. estuary)
T 387 (vegetable additives to stream gravel, as feed for)

Harris, Graham Paul
J 30(12,I): 1771, 1779 (light intensity re photosynthetic rates in phytoplankton, L. Ontario)

Harris, Robert Edward Keating
J 30(7): 927 (malate dehydrogenase isozymes re taxonomic discrimination of walleye, sauger, & their suspected hybrids)

Hart, John Lawson
B 180 (Pacific Fishes of Canada)

Hart, Josephine Frances Lavinia
S 1838 (brief descriptions & distribution of some SE Vancouver Is. shore decapods)

Hartman, Gordon Fredrick
J 30(7): 995 (chemical signals in rainbow trout spawning behavior)

Hasler, Arthur David
J 30(9): 1309 (ultrasonic tracking of Fraser R. mature pink salmon coastal movements)

Hatchery (*see also* Culture; Eggs; Management; Salmon; Trout)
J 30(7): 985 (chemical basis for hatchery-reared Atl. salmon homing to hatchery vs. nearby hydroelectric dam)
(8): 1249 (yolk-sac malformation in Pac. salmons & a pink × chinook hybrid)
(12,1): 1890 (chinook salmon open-jaw syndrome at a)
CNG 93 (vs. stream protection re salmon & trout)
T 364; 365 (evaluation of gravel incubators for pink salmon fry & evaluation at the adult stage, Tsolum R., B.C.)

Hatchetfish
J 30(2): 293 (mercury concentration in *Argyropelecus* sp. off California)

Hatching (*see also* Culture; Development; Eggs; Hatchery)
J 30(1): 137 (genetic analysis of steelhead trout hatching time)

Hauschild, Andreas Wilhelm Heinrich
J 30(11): 1760 (inability to detect *Clostridium botulinum* spores in fish protein concentrate)

Hay
T 387 (zoobenthos response to addition of, to stream substrates)

Hay River, N.W.T. (*see* Great Slave Lake)

Hays, Raymond A.
S 1764 (Montana stoneflies)

Headlightfish (*see Diaphus dumerili*)

Healey, Frederick Patrick
S 1742 (Kok effect in *Chlamydomonas reinhardi* green alga re oxygen exchange & photosynthetic evolution)
1743 (amperometric measurement of hydrogen evolution in *C. moewusii*)

Healey, Michael Charles
T 383 (experimental cropping of N.W.T. lakes: plans & simulation results)
384 (experimental cropping of N.W.T. lakes: physical & chemical features of the lakes)
389 (interrelationships among individuals in a fish school)

Heart (*see also* Blood)
J 30(5): 657 (American eel & Atl. salmon conditioned cardiac response to weak electric fields re oceanic electric fields as possible migration guide)
(5): 693 (recording beats in fish, without implanted electrodes)
(9): 1293 (mercurials uptake by rainbow trout)
(11): 1705 (trout & carp cardiovascular activity during recovery from anesthesia & surgery)

Heart Lake, Ont.
J 30(10): 1525 (phosphorus cycling among its biologically important forms in)

Heart shell, northern (*Venericardia borealis*) (a clam)
J 30(10): 1583 (gross structure of adductor muscle)

Heat (*see* Cooking; Temperature)

Heath, Ronald Allan
T 404 (variability of water properties & circulation of St. Margaret's Bay, N.S.)

Heath, William Arthur
J 30(7): 1014 (mercury & other metal derivatives in benthic animals on Fraser R. mudflats)

Hecate Strait, B.C. (*see also* Oceanography, northeast Pacific coastal)
T 340 (length & age composition of commercial rock sole, 1964–71)
395 (unusually strong current, Sept. 1968)

Heller, David Henry
S 1771 (some facets of pulpmill effluent impact on Alberni Inlet, B.C.)

Helminths (*see* Parasites; *also* classifications of helminths, e.g. Acanthocephala; Cestoda; Nematoda; Trematoda)

Hematin; Hematocrit; Hematology (*see* Blood)

Hematopoietic necrosis (*see* Viruses)

Hemiptera (true bugs)
CNG 95 (life cycle & guide to S Vancouver Is., B.C.)

Hemiselmis (*see* Cryptophyta)

Hemithiris psittacea (brachiopod)
S 1759 (description, from B.C.)

Hemitripterus americanus (*see* Raven, sea)

Hemoglobin (*see* Blood)

Hemolymph (*see also* Blood)
S 1848 (partial characterization of lobster)

Henderson, Herman Francis
J 30(12,2): 2000 (assessing fishery potentials of lakes, reservoirs)

Hennemuth, Richard Clark
J 30(12,2): 2444 (sea herring fisheries management in NW Atl.)

Hepatopancreas (*see also* Pancreas)
J 30(1): 41(F) (*Carcinus maenas* shore crab metabolism during intermolt cycle)

Herbicides

J 30(4): 499 (sodium pentachlorophenate effects on underyearling sockeye salmon)

Heredity; Inheritance (*see also* Genetics)
J 30(3): 401 (thermal resistance inheritance in splake)

Hermanutz, Roger Othmer
J 30(12,I): 1811 (Captan fungicide toxicity to fathead minnow, bluegill, & brook trout)

Herring, Atlantic (*Clupea harengus harengus*)
J 30(1): 17 (predation by NW Atl. harp seals)
T 339 (length, age, & weight in SW Nfld. winter fishery, 1965–66 to 1970–71)
365 (fat & water content re length, sex, season, spawning, etc., Nfld. waters)
402 (re fish assemblages)
S 1735 (protein concentrate re milk protein replacer in calf rations)
1776 (properties of silvery layers of scales)
1788 (fractional vacuum distillation of oil methyl esters)
1805; 1806; 1807 (nature of "red" herring effect caused by elemental phosphorus toxicity, Placentia Bay, Nfld.)
1808 (elemental phosphorus as probable cause of moribund)

Herring, blueback (*Alosa aestivalis*)
J 30(8): 1195 (thermal effects of nuclear power plant effluent on)
B 184: 119 (full description, etc., in Canada)

Herring, lake (*see* Cisco)

Herring, Pacific (*Clupea harengus pallasi*)
J 30(4): 565 (parasitism by river lamprey)
(7): 1017 (liver changes in rainbow trout fed oil from)
CNG 94 (changing oceanic environment, effect on B.C. year-class strengths)
B 184: 10 (observed in Canadian fresh or brackish waters)
T 355–358 (millions in B.C. waters at age (catch, spawners, & immatures) in populations, 1950–51 to 1969–70)
359 (millions of eggs & miles of spawn in B.C. waters, 1951–70)
360 (annulus formation in scales)
381 (physical factors in B.C. coast waters re population sizes)
399 (computer programs for population analysis from catch, sampling, & spawn deposition data)

Hesslein, Raymond Henry
J 30(10): 1485 (distribution & uptake of artificially introduced ^{226}radium in a small lake)
(10): 1491 (vertical eddy diffusion in thermocline of a small stratified lake)

Hexose (*see also* Alditol; Glucose)
J 30(1): 45 (monophosphate: accumulation & related metabolic changes in unfrozen & thawed sea scallop adductor muscle)

Hiatella arctica (*see* Saxicave, Arctic)

Hiltz, Doris Fraser
J 30(1): 45 (metabolic changes in unfrozen & thawed sea scallop adductor muscle)

Hingley, Helen Joyce
J 30(1): 113 (odd-chain fatty acid level variations in N.S. rainbow smelt)

Hiodon alosoides (*see* Goldeye)
tergisus (*see* Mooneye)

Hippoglossoides platessoides (*see* Plaice, American)

Hippoglossus hippoglossus (*see* Halibut, Atlantic)
stenolepis (*see* Halibut, Pacific)

Hirose, Keiji
S 1785 (salmon pituitary gonadotropin induction of ayu ovulation)

Hirundichthys rondeleti (*see* Flyingfish, blackwing)

Hiscox, John Irving
J 30(3): 443 (gut nematode effects on young rainbow trout consumption & growth)

Histology (*see also* Cytology; Morphology)
J 30(3): 363 (copper-induced lesions in mummichog & Atl. silverside organs)
(4): 549 (spontaneous nephroblastoma in a rainbow trout)
(4): 571 (redmouth disease in rainbow trout)
(7): 994 (pathogenic fungus in coho salmon)
(8): 1099 (skin & testes, of young coho & chinook salmon treated with testosterone derivative to promote weight increase in young)
(9): 1337 (setal development in American lobster proecdysis)
(10): 1553 (effect of cadmium & copper chloride on rainbow trout gills)
S 1770 (pink salmon testes with & without hormone gonadotropin injection to fish)
1775; 1776 (re silvery reflectiveness of salmon & herring skin & scales)
1805; 1806 (of fishes affected by elemental phosphorus pollution of Placentia Bay, Nfld.)
1814 (cadmium-induced injury to brook trout testes)
1833 (pink salmon ovary stimulated by chinook salmon gonadotropin)
1856 (olfactory rosettes of some freshwater fishes)

History (*see also* Life history)
B 180: 3 (development of ichthyology of B.C. marine fishes)
184: 11 (references re development of ichthyology of Canadian freshwater fishes)

CJG 20 (Gulf of St. Lawrence redfish fishery)
MSP 20 (of Fisheries Research Board of Canada, 1898–1973 (in English & French))
S 1756 (early, of fishery research)
1826 (exploitation of NW Atl. fin whale)
1837 (climatic changes in NW Atl. subarctic surface water temperatures)

Hobbie, John Eyres
S 1786 (distribution & activity of microorganisms in ocean water)

Hobden, B. R.
S 1856 (olfactory response to amino acids by whitefish, brook & rainbow trout)

Hodder, Vincent Mackay
T 339 (length, age, & weight of SW Nfld. winter herring, 1965–66 to 1970–71)
365 (fat & water content of Nfld. herring re spawning, length, sex, season, etc.)
S 1806; 1807 (effects of elemental phosphorus pollution on Atl. herring, Placentia Bay, Nfld.)

Hogsucker, northern (*see* Sucker, northern hog)

Hokanson, Kenneth E. F.
J 30(7): 975 (thermal requirements for brook trout maturation, spawning, & embryo survival)

Holding (*see also* Aquaculture; Culture; Ice; Pond; Refrigeration; Sea water, refrigerated; Tanks)
CJG 19 (green sea urchin, re commercial handling)

Holdrinet, Micheline
J 30(3): 471 (mercury, DDT, & PCB residues in Gulf of Maine & Bay of Fundy harbour seals)

Holeton, George Francis
J 30(6): 717 (Arctic char respiration in a Canadian high-arctic lake)

Holman (*see* Victoria Is.)

Holmgren, Staffan Knut
T 337 (phytoplankton species composition & seasonal distribution in FRB Experimental Lakes Area, NW Ont.)

Holm-Hansen, Osmund
S 1786 (distribution & activity of microorganisms in ocean water)

Homarus americanus (*see* Lobster, American)
gammarus (*see* Lobster (European))

Homestead, Ronald Eric
S 1810 (instantaneous explosive branding device for seals)

Homing (*see also* Migration; Spawning)
J 30(1): 129 (evidence for, in mosshead sculpin)
(7): 985 (chemical basis for hatchery-reared vs. wild Atl. salmon to the hatchery vs. a nearby hydroelectric dam)
(7): 995 (chemoreception re rainbow trout spawning behavior)
(7): 1012 (brook trout, Matamek L., Que.)
(12,1): 1847 (behavior of American shad)
S 1795 (re fishes chemoreception)

Homoiotes palliata (*see* Caligidae)

Honda, Kisaburo
J 30(12,2): 2328 (joint fishery ventures of developing countries)

Hooper, Shirley Norma
S 1747 (isoprenoid fatty acid diastereoisomerism re marine lipids & organic geochemistry)
1766 (*trans*-6-hexadecenoic acid in a jellyfish & gorgonian)
1767 (monomethyl-branched fatty acids in ruminant (sheep) fats)
1772 (naturally occurring marine tetramethylpentadecane stereochemistry)
1797 (gas chromatographic analysis of acyclic isoprenoid fatty acid stereoisomers)
1798 (isolation of a methyl-hexadecenoic acid from ocean sunfish lipids)

Hormones (*see also* Pituitary; Steroids)
J 30(6): 775 (possible role of pheromones in chemical communication among lobsters)
(7): 905 (testosterone propionate effects on responses of green sunfish testes re temperature)
(8): 1099 (testosterone derivative for promoting weight increase in young coho & chinook salmon)
(8): 1131 (binding of triiodothyronine & thyroxine to brook trout plasma proteins)
S 1732 (gonadotropin preparation from chinook salmon pituitary glands)
1760 (testosterone & its glucuronide in thorny skate testicular & peripheral plasma)
1770 (gonadotropin induction of precocious sexual maturity in male pink salmon)
1784; 1785 (gonadotropin stimulation of fishes ovarian functions)
1814 (cadmium-induced androgen synthesis alteration in brook trout)
1841 (isolation & amino acid sequence of neurohypophyseal, of chinook salmon)
1842 (oxytocic activity changes of hypophysis during chinook sexual maturation)

Horne, David Alexander
J 30(3): 454 (mercury & methylmercury content of American eel, N.S.)
(8): 1251 (sampling swordfish edible muscle for total mercury analysis)

Horner, Rita

J 30(6): 835 (in situ measurement of primary productivity in arctic sea ice algae)

Horning, William Bliss, II
J 30(8): 1226 (growth temperature requirements & lower lethal temperatures, for young smallmouth bass)

Horrall, Ross Moody
J 30(9): 1309 (ultrasonic tracking of Fraser R. mature pink salmon coastal movements)

Horwood, Colin Richard
S 1771 (some facets of pulpmill effluent impact on Alberni Inlet, B.C.)

Hoskins, Gary Edward
J 30(10): 1578 (first record of bacterial kidney disease in apparently wild salmonid in B.C.)

Hourston, Alan Stewart
T 355–357; 359 (B.C. herring populations & spawning, 1950–51 to 1969–70)
358 (B.C. herring catches, age composition, 1950–51 to 1969–70)
399 (computer programs for B.C. herring population analysis from catch, sampling, & spawn deposition data)

House, Robert
J 30(8): 1221 (SE L. Michigan trout-perch age, growth, spawning season, & fecundity)

Houston, Arthur Hillier
J 30(11): 1705 (trout & carp functional activity during recovery from anesthesia & surgery)

Howe Sound, B.C.
T 385 (survey of benthic macroinvertebrates & solid pollutants)
396 (mercury distribution in sediments & waters)

Hoyle, Richard James
J 30(11): 1647 (lobster digestive enzyme secretion after dietary variation)

Hudson Bay
J 30(1): 53 (balanced vs. geostrophic wind-stress)
(8): 1065 (white whale biology)
(9): 1345 (*Macoma balthica* clam growth & mortality)
B 184: 7 (list of freshwater fishes in drainage basin)

Hughes, Roger Neville
S 1792 (multivariant analysis for identifying benthos functional components)

Hunding, Carsten
J 30(2): 309 (^{14}C vs. dissolved oxygen methods for measuring benthic microalgal primary production)

Hunting (of aquatic mammals) (*see* Headings relating to whales, seals, and porpoises)

Hutzinger, Otto
S 1755 (photochemical degradation of chlorobiphenyls)
1774 (metabolism of polychlorinated biphenyls isomers in rat, pigeon, & brook trout)

Hyatt, Ross Aluin
J 30(9): 1392 (salmon & eel mortality from nitrogen supersaturation in water passing through hydroelectric turbines)

Hybognathus hankinsoni (*see* Minnow, brassy)
nuchalis (*see* Minnow, silvery)

Hybopsis gracilis (*see* Chub, flathead)
storeriana (*see* Chub, silver)
x-punctata (*see* Chub, gravel)

Hybrids (*see also* Splake)
J 30(3): 401 (inheritance of thermal resistance in brook trout × lake trout (splake))
(4): 557 (longnose sucker × white sucker, Kananaskis Reservoir, Alta.)
(7): 927 (electropherograms of malate dehydrogenase isozymes re taxonomic discrimination of walleye, sauger, & their suspected hybrids)
(8): 1249 (yolk-sac malformation under certain hatchery conditions)
(12,I): 1901 (sunfishes hybridization analysis using adjusted hybrid index method)

Hydraulics (*see* Hydrodynamics)

Hydrocarbons (*see also* Oils, petroleum; *also* next heading)
J 30(11): 1611 (of some fuel oils)
S 1772 (basking shark liver oil tetramethylpentadecane (pristane) stereochemistry re phytol & geochemistry)

Hydrocarbons, halogenated (*see also* Insecticides; Oils, petroleum; Pentachlorophenate; Pesticides; Pollution; Polychlorinated biphenyls)
J 30(8): 1053 (residues in Canadian Atl. coast harp seals)
(8): 1091 (effects on Atl. salmon & brook trout temperature selection)
(11): 1619 (behavior of DDD, DDT, PCB, lindane, & chlordane in natural waters & their sediments)

Hydrodynamics (*see also* Currents; Oceanography; Tides; Transport, mass)
T 380 (energy changes re wind mixing in upper ocean)
S 1857 (re energy transfer in water column at Pac. Ocean Station P)

Hydroelectric power plant
J 30(9): 1392 (effect on salmon & eels from nitrogen

supersaturation in water passing through turbines)

Hydrogen
S 1743 (amperometric measurement of evolution in a phytoflagellate)

Hydrography (*see also* Oceanography)
S 1807 (Placentia Bay, Nfld., re elemental phosphorus pollution effects on marine life)

Hydroida
J 30(7): 867(F) (seasonal settling of 2 species, St. Lawrence R. estuary)
(11): 1655 (first record of *Ichthyocodium sarcotretis* gymnoblastic hydroid on *Sphyrion lumpi* copepod parasitic on NW Atl. redfish, re possible help in NW Atl. *Sebastes* speciation)

Hydrolase (*see* Enzymes)

Hydrolysate
J 30(11): 1745 (peptic hydrolysis of fish waste to yield nutritionally available plastein)

Hydrophone
J 30(1): 119 (& bow-mount, for tracking fish by ultrasonic telemetry)

Hydroxylases (*see* Enzymes)

Hygophum hygomi (a mesopelagic hygophid fish; no common name yet assigned)
J 30(1): 134 (lengths of 4 specimens taken in or off Gulf of Maine)
(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, SE coast USA)

Hypentelium nigricans (*see* Sucker, northern hog)

Hyperglycemia
J 30(6): 831 (of young steelhead trout & coho salmon from sublethal heat stress)

Hyperoodon ampullatus (*see* Whale, Atlantic bottle-nosed)
rostratus (*see* Whale, bottle-nosed)

Hypochlorite (as biocide)
J 30(8): 1195 (effects on 9 freshwater fish species)

Hypocholesterolemia
J 30(6): 831 (of young steelhead trout & coho salmon from sublethal heat stress)

Hypomesus olidus (*see* Smelt, pond)
pretiosus (*see* Smelt, surf)
transpacificus (*see* Smelt, delta)

Hypophysis (*see* Hormones)

Hypoxanthine
S 1763 (levels in Pac. halibut stored in refrigerated sea water, in ice, & frozen)
1844 (formation in freshwater fishery products as quality test)

Hypoxia (*see* Oxygen, dissolved; Respiration)

I

Ice; Icing (*see also* Refrigeration)
J 30(6): 835 (in situ primary productivity measurement of algae in arctic sea ice)
(8): 1246 (changes in trimethylamine, dimethylamine, & extractable protein of iced & frozen Atl. gadoid fillets)
B 182 (Gulf of St. Lawrence)
184: 15 (dry ice for freezing & shipping fish specimens for identification)
T 363 (vs. refrigerated sea water for chilling Pac. halibut at sea before freezing)
374 (electromagnetic device for locating fishing gear under ice)
S 1763 (hypoxanthine & nucleotide levels in Pac. halibut stored in)
1822 (quality of canned sockeye salmon from fish stored in)
A 285 (of shrimp on Central American shrimp trawlers (in Spanish & English))

Ichthyocodium (*see* Hydroida)

Ichthyomyzon castaneus (*see* Lamprey, chestnut)
fossor (*see* Lamprey, northern brook)
unicuspis (*see* Lamprey, silver)

ICNAF (*see* International Commission for the Northwest Atlantic Fisheries)

Ictalurus catus (*see* Catfish, white)
melas (*see* Bullhead, black)
melas melas (*see* Bullhead, northern black)
natalis (*see* Bullhead, yellow)
nebulosus (*see* Bullhead, brown)
punctatus (*see* Catfish, channel)

Ictiobus cyprinellus (*see* Buffalo, bigmouth)

Identification (of aquatic forms) (*see also* Keys)
B 180 (simplified recognition of B.C. marine fishes (325 species))
184 (simplified recognition of Canadian freshwater fishes (181 species))
A 293 (general, of whales)

Idler, David Richard
CAR 2 i (introduction to compilation of papers on elemental phosphorus pollution)
S 1748 (review of FRB chemical & biochemical studies of aquatic life; products; processing; pollution)
1768 (corticosteroids in South American lungfish plasma)

Idyll, Clarence Purvis
J 30(12,2):2178 (marine aquaculture: problems & prospects)

Ihssen, Peter
J 30(3): 401 (inheritance of thermal resistance in splake)

Ikroavik Lake, Alaska
J 30(8): 1179 (ninespine stickleback energy budget)

Illumination (*see* Darkness; Diel habits; Light, reactions to; Vision)

Impexus hamondi
S 1783 (new Lernaeoceridae copepod genus & species, on Australian fishes; key to Lernaeoceridae genera)

Impoundment (*see* Culture; Pond)

Inconnu (*Stenodus leucichthys*)
J 30(3): 457 (age & growth, Alaska)
B 184: 295 (full description, etc., in Canada)

Incubation (*see* Development; Eggs; Hatchery)

Indexes
R 1971–1972 (to FRB professional staffs)
B 155(F) 503 (to French edition of Bulletin on Canadian Atlantic coast fishes)
164 (separate French translation of preface only)
180: 715 (to families, genera, species, common English names, and many French common names, of B.C. marine fishes) (*also* indexed in MSP 18)
183: 299 (to Russian-English fishery & aquatic biology dictionary)
184: 921 (to Canadian freshwater fishes) (*also* indexed in present index)
MSP 18 (subject-author to FRB publications, 1965–1972)
T 385 (survey of benthic macroinvertebrates & solid pollutants near shores of Howe Sound, B.C.)
S 1845 (NE USA Oligochaeta)

Indicator species (*see* Species, indicator)

Infection (*see* Disease; Parasites; Pathology; Viruses)

Ingram, Richard Grant
J 30(1): 121 (winter surface currents around Cape Breton Is., N.S.)

Inheritance (*see* Heredity)

Injury
J 30(9): 1370 (causes, in commercially caught lobsters)

Inlets (*see* name of inlet, e.g. Alberni Inlet, B.C., Bedford Basin, N.S.; Howe Sound, B.C.; Puget Sound, Wash.; Saanich Inlet, B.C.; St. Margaret's Bay, N.S.

Insecticides (*see also* Pesticides; Pollution; Toxicants)
J 30(3): 471 (DDT & dieldrin in Bay of Fundy & Gulf of Maine harbour seals)
(4): 499 (sodium pentachlorophenate effects on underyearling sockeye salmon)
(5): 595 (DDT & other organochlorine residue levels re Gulf of St. Lawrence harp seal age)
(5): 651 (young Atl. salmon behavior when exposed to, or force-fed fenitrothion)
(5): 702 (cooking effects on DDT compounds in L. Michigan chinook & coho salmon flesh)
(8): 1053 (DDT & its metabolite residues in Canadian Atl. coast harp seals)
(8): 1091 (effects of DDT & its metabolites on Atl. salmon & brook trout temperature selection)
(11): 1619 (behavior in natural waters & their sediments)
(11): 1733 (DDT & DDE types in beluga whale tissues, Mackenzie R. delta, N.W.T.)
(12,1):1894 (effects of DDT & dieldrin on winter flounder egg development)

Insects (*see also* classifications, e.g. Chironomidae; Diptera; Hemiptera; Mites; Plecoptera)
CNG 95 (guide to S Vancouver Is. stream insects)
T 387 (vegetable additives to stream gravel, as feed for larvae)

Insolation (*see also* Light, reactions to; Photosynthesis)
S 1857 (effects on upper water layers, Pac. Ocean Station P)

Instruments; Instrumentation (*see* Apparatus)

Insull, A. D.
J 30(12,2):2490 (technical development re world fisheries problems)

International Commission for the Northwest Atlantic Fisheries (ICNAF) (*see also* next heading)
S 1752 (1963 sightings of whale & dolphin species, N Atl.)

International commissions, councils, organizations (*see also* preceding heading)
J 30(12,2):(*see* separate index in that issue on proceedings of FAO Technical Conference on Fishery Management and Development (Vancouver, B.C., Feb. 13–23, 1973))

Interrenal gland
J 30(3): 395 (little effect of kraft pulpmill effluent on young coho salmon)

Intestine (*see also* Feed; Digestion)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content, in scalloped hammerhead, SE coast USA)
(2): 291 (helminth parasites of northern sand lance)
(6): 841 (molybdenum uptake in rainbow trout & kokanee)
(9): 1293 (mercurials uptake by rainbow trout)
S 1806 (elemental phosphorus effects on Atl. herring)

Invertebrates (in general) (*see also* classifications of; *also* Benthos; Biomass; Feed; Parasites; etc.)
T 385 (indexed list of benthic macroinvertebrates near shores of Howe Sound, B.C., re benthic pollutant effects)
401 (larvae, in St. Margaret's Bay, N.S., 1968–71)

Iodine derivatives
J 30(9): 1395(F) (^{125}I metabolism re thyroid function of yellow perch)

Iredale, David Gordon
J 30(8): 1235 (masking or neutralizing muddy flavor in rainbow trout by smoking & canning)
S 1765 (processing effects on smoked goldeye texture)

Irish moss (*Chondrus crispus*)
J 30(9): 1370 (rake harvesting as cause of lobster claw loss & wounds)
T 362 (odometer for measuring speed & distance of raking)

Iron derivatives
J 30(8): 1147 (effect of lime-neutralized hydroxide suspensions on survival, growth, & reproduction of fathead minnow)
(8): 1240 (in Seattle harbor estuary sediments)
(9): 1287 (concentrations in bluefish & blue antimora muscle re total body weights)
S 1830 (content of duck feathers re geographical origin)

Irradiation (*see also* Isotopes; Light, reactions to; Radiometer; headings commencing with Photo...)
J 30(2): 305 (to extend shelf life of Indian mackerel)
(2): 313 (submersible spectroradiometer for measuring & recording irradiance vs. wavelength)
(10): 1447, 1469 (numerical models & apparatus for determining, re photosynthesis)
T 376 (computer programming for calculating integral irradiance re photosynthesis)
S 1857; 1858 (effects on upper ocean layers)

Irwin, Brian
S 1779 (phytoplankton nutrients & flushing of N.S. inlets)

Isaacson, Richard Stanley Kilburn
T 358 (age composition of B.C. herring catches, 1950–51 to 1969–70)

Ishida, Kohzoh
J 30(3): 471 (mercury, DDT, & PCB residues in Gulf of Maine & Bay of Fundy harbour seals)

Ishida, Rikizo
S 1785 (salmon pituitary gonadotropin induction of ayu ovulation)

Isochrysis galbana (*see* Diatoms)

Isomerism (chemical) (*see* Acids, fatty; Waxes; *also* other types of chemicals subject to isomerism)

Isotopes (radioactive) other than ^{14}C (Data on use of ^{14}C are, with few exceptions, not indexed because of frequent use; e.g. *see* Biosynthesis; Photosynthesis. *See also* names of chemical elements)
S 1817 (validity of interpreting use for measuring transfer of materials in aquatic food chains)

Isozymes (*see* Enzymes)

J

Jackim, Eugene
J 30(4): 560 (influence of various metal derivatives on fish aminolevulinate dehydrase activity)

Jangaard, Peter Michael
CAR 2 (compiler & editor of 28 reprints of FRB papers on elemental phosphorus pollution crisis, Placentia Bay, Nfld.)
S 1788 (fractional vacuum distillation of herring oil methyl esters)

Jaw (*see also* Morphology; Teeth)
J 30(12,1): 1890 (chinook salmon open-jaw syndrome at a hatchery)

Jellyfishes
J 30(8): 1105 (*Sarsia tubulosa*, *Phialidium gregarium*, & *Pleurobrachia pileus* behavior in salinity discontinuity layers)
S 1766 (*trans*-6-hexadecenoic acid in *Aurelia aurita*)

Jenkins, Thomas Mandeville, Jr.
J 30(11): 1755 (rainbow trout energy expenditure in small mountain stream)

Jensen, Alvin Lee
J 30(7): 998 (simple dynamic pool vs. surplus production models for fishery yield)

Jensen, Arne
J 30(2): 143 (growth & cell-size distribution of cultured marine planktonic algae)

Jessop, Brian Michael
J 30(2): 299 (round whitefish age, growth, & maturity, Leaf R., Ungava, Que.)

Jhingran, Vishwa Gopal
J 30(12,2): 2341 (development of brackish-water fish & shrimp culture in India)

Jigger
T 374 (electromagnetic, for locating under ice in gillnetting operations)

Jonas, Richard Edmund Ernest

J 30(10): 1553 ($CdCl_2$ & $CuCl_2$ effects on lactate oxidation by rainbow trout gills)

Jones, Bernard Raymond
J 30(7): 975 (thermal requirements for brook trout maturation, spawning, & embryo survival)

Jones, Neysa Yates
J 30(9): 1287 (metallic contaminants in bluefish & blue antimora muscle re total body weights)

Jordanella floridae (*see* Flagfish)

Joseph, James
J 30(12,2): 2471 (scientific management of world stocks of tunas, billfishes, & related species)

Juan de Fuca Strait, B.C. & Washington
J 30(2): 215 (seasonal cycle of vitamin B_{12} & other nutrients)

K

Kabata, Zbigniew
J 30(6): 729 (descriptions & key to 10 *Lepeophtheirus* species from B.C. fishes)
(7): 881 (life cycle & morphology of *Salmincola californiensis* in sockeye salmon)
(12,1): 1793 (distribution of *Udonella caligorum* trematode on *Caligus elongatus* copepod)
(12,1): 1892 (taxonomic status of *Homoiotes palliata* copepod)
S 1782 (description of male *Caligus chelifer* parasitic copepod)
1783 (description of *Impexus hamondi*, new genus & species of parasitic copepod, on Australian fishes)
1789 (taxonomy of *Anchorella* vs. *Alella* re taxonomy of Lernaeopodidae)

Kabir, Shahjahan
S 1778 (chromatography & mass spectrometry of methylated alditol acetates)

Kaczynski, Victor Walter
J 30(7): 1003 (young pink & chum salmon feed preferences in Puget Sound, Wash.)

Kalamalka Lake, B.C.
J 30(4): 519 (crustacean plankton re eutrophication)
(7): 917 (thermal structure re several adjacent lakes, Okanagan Valley, B.C.)
T 342 (bottom fauna survey)

Kananaskis River system, Alta.
J 30(4): 557 (longnose sucker × white sucker hybrids in reservoir)

Karrer, Earl
S 1849 (polyamines of *Pseudomonas acidovorans*)

Karyotypes (*see* Chromosomes; Genetics)

Kasahara, Hiroshi
J 30(12,2): 2348 (fisheries management in N Pac.)

Kaya, Calvin Masayuki
J 30(7): 905 (temperature effects on green sunfish gonad responses to carp pituitary extract & to hormone)

Ke, Paul Jenn
S 1788 (fractional vacuum distillation of herring oil methyl esters)

Keenleyside, Miles Hugh Alston
J 30(12,1): 1901 (analysis of hybridization of sunfishes by adjusted hybrid index)

Keepability (*see* Freezing; Preservation; Quality of fishery products; Refrigeration)

Keizer, Paul David
J 30(8): 1039 (detecting petroleum hydrocarbon traces in sea water)
(11): 1611 (accommodation of some fuel oils in sea water)

Kelsall, John P.
S 1830 (content of chemical elements in duck feathers re geographical origin)

Kempfert, Kenneth Donald
J 30(12,1): 1811 (Captan fungicide toxicity to fathead minnow, bluegill, & brook trout)

Kennedy, Owen David
S 1811 (microzooplankton in coastal & oceanic Pac. subarctic water mass)

Kennedy, William Alexander
T 373 (tagging young sablefish, NE Vancouver Is.)
388 (1972 sablefish culture results)

Kenney, Allen Robert
S 1836 (clearance rate of methylmercury from northern pike tissues)

Kerr, Stephen Roy
J 30(5): 595 (organochlorine residue level variation in blubber re age of Gulf of St. Lawrence harp seals)
A 286 (review of book on fundamentals of ecology)

Ketchen, Keith Stuart
A 289 (biological considerations of Canadian coastal zone fisheries)

Keys (for identification of organisms)
J 30(3): 389 (to *Sabussowia* marine triclad turbellarian genus)
(5): 665 (to Nearctic & Palaearctic *Monodiamesa* chironomids, including 3 new species)

(6): 729 (*Lepeophtheirus* Caligidae (including a new species) from B.C. fishes)
(9): 1379 (Canadian *Notropis* species having round scales & 9 or more anal rays)
CNG 95 (pictorial, of S Vancouver Is. aquatic insects)
B 180: 15, etc. (B.C. marine fishes; keys to classes, subclasses, & orders)
184: 29–33 (Canadian freshwater fishes; family and species keys)
S 1753 (Palaearctic & Nearctic Chaoboridae)
1764 (119 Montana stonefly species)
1783 (Lernaeoceridae copepod genera)
1845 (NE USA Oligochaeta)

Kidney
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of silky shark, SE coast USA)
(2): 296 (corynebacterial disease in coho salmon: nutritional factors in biochemical pathology of)
(3): 395 (little effect of kraft pulpmill effluent on coho salmon)
(4): 549 (spontaneous nephroblastoma in a rainbow trout)
(4): 571 (histology re rainbow trout redmouth disease)
(4): 583 (acute & long-term copper accumulation in brown bullhead)
(5): 643 (mercury uptake in caged rainbow trout, S Saskatchewan R.)
(6): 841 (molybdenum uptake in rainbow trout & kokanee)
(6): 843 (mercury uptake in Atl. seals)
(9): 1293 (mercurials uptake by rainbow trout)
(10): 1578 (first record of bacterial disease in wild salmonid (rainbow trout) in B.C.)
S 1805 (elemental phosphorus effects on Atl. herring)
1836 (methylmercury concentration in northern pike)

Killick, Stanley Reginald
J 30(4): 565 (river lamprey parasitism on young Pac. salmons & herring)

Killifish, banded (*Fundulus diaphanus*)
B 184: 631 (full description, etc., in Canada)

Kiyi (*Coregonus kiyi*)
B 184: 252 (full description, etc., in Canada)

Kleerekoper, Herman
J 30(6): 725 (temperature & copper ion interaction re goldfish locomotor behavior)

Kling, Hedy Joanna
J 30(10): 1415 (further results of PO_4 & NO_3 enrichment on eutrophication of a lake in the FRB Experimental Lakes Area (ELA), NW Ont.)
T 337 (phytoplankton species composition & seasonal distribution in ELA lakes)

Knight, William Rexford
T 397 (are species association coefficients really necessary?)
402 (method for compression of species association data)

Kogl, Dennis Raymond
J 30(4): 554 (notes on whitefishes, Colville R., Alaska)

Koh, Yoon-Ho
J 30(12,2): 2368 (fishermen's training in Korea)

Kok effect
S 1742 (in oxygen exchange & photosynthetic evolution by *Chlamydomonas* green alga)

Kokanee (*Oncorhynchus nerka*) (landlocked sockeye salmon)
J 30(6): 841 (molybdenum in tissues from waters containing molybdenum)
B 184: 165 (full description, etc., in Canada)

Konstantinov, K. G.
J 30(12,2): 2436 (fishery regulations in ICNAF area)

Korn, Sidney
J 30(12,1): 1880 (fish fat content determination with nontoxic, noninflammable solvent)

Kostoris, Jon
J 30(8): 1179 (ninespine stickleback energy budget in an Alaskan arctic lake)

Kowalczewski, Andrzej
S 1793 (productivity & energy flow, R. Thames, Eng.)

Kraft pulpmill effluent (*see* Pulpmill effluents)

Kramer, Donald Emerson
T 363 (frozen Pac. halibut keeping quality re prefreezing storage)
S 1763 (hypoxanthine & nucleotide levels in chilled & frozen Pac. halibut)
1822 (quality of sockeye salmon canned from fish stored in ice vs. refrigerated sea water)

Kripps, Robert Stephen
S 1803 (sulfur requirements for deaminase activity in 2 cryptophytes)

Kropinski, Andrew Maitland Boleslaw
S 1819 (an unusual pyrimidine from a bacteriophage deoxyribonucleic acid)

Krueger, Hugo Martin
J 30(11): 1661 (statistical approach to coho salmon fatty acid content changes produced by diet)

Kudhongania, Aggrey William
J 30(12,2): 2000 (assessing fishery potential in lakes and reservoirs)

Kumta, Umesh Shivrao

J 30(2): 305 (extending shelf life of iced Indian mackerel by irradiation)

Kutty, Methil Narayanan
J 30(2): 223 (young Atl. salmon swimming performance in respirometer as affected by reduced oxygen concentration)

L

Labidesthes sicculus (*see* Silverside, brook)

Labrador (*see also* Newfoundland)
B 184 (freshwater fishes of)
T 353; 392 (size & age of commercial salmon catch)

Lack, Timothy John
S 1793 (productivity & energy flow, R. Thames, Eng.)

Lacour, Pierre Jean Francois
J 30(12,2):2293(F) (development problems of small fisheries)

Lacroix, Guy
J 30(7): 867(F) (benthic epifauna seasonal settlement in St. Lawrence R. estuary)

Lactate
J 30(7): 1023 (dehydrogenase homotetramers pH activity, from steelhead trout liver, & their physiological significance)
(10): 1553 (copper & cadmium effects on oxidation by rainbow trout gills)

Lagenorhynchus acutus (*see* Dolphin, white-sided)
albirostris (*see* Dolphin, white-beaked)

Lagunov, Lev Lvovich
J 30(12,2):2196 (utilization of krill & other resources from world ocean)

Lake...(*see* name of lake)

Lakes (*see also* Limnology; *also* Fisheries Research Board of Canada Experimental Lakes Area, NW Ont.)
J 30(12,2):(*see* separate index in that issue on proceedings of FAO Technical Conference on Fishery Management and Development (Vancouver, B.C., Feb. 13–23, 1973))
T 382 (growth & survival of matched wild vs. domestic rainbow trout plantings in prairie pothole lakes)
383; 384 (experimental cropping of N.W.T. lakes: plans & simulation results; physical & chemical features of the lakes)
A 277; 288 (nutrients & eutrophication — present & future prospects)

Lalli, Carol Marie
S 1791 (*Clione limacina* feeding & growth)
1831 (*Paedoclione doliiformis* & *C. limacina* reproduction & development)

Lampanyctus alatus (*see* Lampfishes)
crocodilus (*see* Lanternfish, jewel)
pusillus (*see* Lampfishes)

Lampetra ayresi (*see* Lamprey, river)
japonica (*see* Lamprey, Arctic)
lamottei (*see* Lamprey, American brook)
pacifica (*see* Lamprey, Pacific brook) (new species)
richardsoni (*see* Lamprey, western brook)

Lampfish, patchwork (*Notoscopelus resplendens*)
J 30(1): 134 (length of a specimen taken in or off Gulf of Maine)

Lampfishes (species uncertain, or no common name yet assigned)
J 30(1): 134 (*Lampanyctus alatus*: length of a specimen taken in or off Gulf of Maine)
(2): 275 (*L. pusillus*: As, Cd, Cu, Hg, & Zn content of muscle, off SE coast of USA)

Lamprey, American brook (*Lampetra lamottei*)
J 30(1): 7 (quantitative seasonal grazing of larval on algae)
B 184: 62 (full description, etc., in Canada)

Lamprey, Arctic (*Lampetra japonica*)
B 184: 58 (full description, etc., in Canada)

Lamprey, Arctic (*Lethenteron japonicum*)
T 304 (life history & distribution, Great Slave L. region, N.W.T.)

Lamprey, chestnut (*Ichthyomyzon castaneus*)
B 184: 46 (full description, etc., in Canada)

Lamprey, northern brook (*Ichthyomyzon fossor*)
B 184: 49 (full description, etc., in Canada)

Lamprey, Pacific (*Entosphenus tridentatus*)
B 184: 42 (full description, etc., in Canada (*see also* B 180: 20))

Lamprey, Pacific brook (*Lampetra pacifica*)
J 30(2): 205 (description as new nonparasitic species from Oregon & California)

Lamprey, river (*Lampetra ayresi*)
J 30(4): 565 (parasitism on young Pac. salmons and herring)
B 184: 55 (full description, etc., in Canada (*see also* B 180: 22))

Lamprey, sea (*Petromyzon marinus*)
J 30(1): 7 (quantitative seasonal grazing of larval landlocked & anadromous on algae)
(1): 131 (early record from L. Ontario)

(3): 461 (preparation & properties of an aminophenol derivative re metabolism of a similar nitrophenol derivative used as a lamprey larvicide)
(5): 601 (predation selectivity for freshwater fishes & their size)
(9): 1367 (oxygen consumption re adult body weight & temperature)
B 184: 69 (full description, etc., in Canada)

Lamprey, silver (*Ichthyomyzon unicuspis*)
B 184: 52 (full description, etc., in Canada)

Lamprey, western brook (*Lampetra richardsoni*)
J 30(2): 205 (morphology re that of new species Pacific brook lamprey)
B 184: 65 (full description, etc., in Canada)

Lampreys (*see also* preceding names of species)
B 184: 22 (schematic diagrams of teeth & buccal funnels)
40 (body shape & maximum known length of 9 Canadian species)

Lampricide
J 30(3): 461 (preparation & properties of)
(8): 1047 (TFM toxicity to early life stages of rainbow trout)
(12,1): 1841 (TFM degradation by bottom sediments)

Lance, American sand (*Ammodytes americanus*)
B 184: 11 (observed in Canadian fresh or brackish waters)

Lance, northern sand (*Ammodytes dubius*)
J 30(2): 291 (intestinal helminth parasites)
(3): 451 (feed & inferred feeding behavior)

Lances
J 30(2): 291 (parasites of northern sand lance re other sand lance species)

Landings (*see* Catches; *also* types and kinds of fisheries)

Landolt, Marsha Lamerle
J 30(11): 1625 (isolation & identification of infectious hematopoietic necrosis fish virus in E North America)
(11): 1713 (isolation & concentration of *Myxosoma cerebralis* whirling disease spores from rainbow trout skeletal elements by trypsin digestion)

Lanternfish, glacier (*Benthosema glaciale*)
J 30(1): 134 (length ranges of 386 specimens taken in or off Gulf of Maine)

Lanternfish, horned (*Ceratoscopelus maderensis*)
J 30(1): 134 (length ranges of 63 specimens taken in or off Gulf of Maine)

Lanternfish, jewel (*Lampanyctus crocodilus*)
J 30(1): 134 (lengths of 2 specimens taken in or off Gulf of Maine)

Lanternfish, Krøyer's (*Notoscopelus krøyeri*)
J 30(1): 134 (lengths of 4 specimens taken in or off Gulf of Maine)

Lanternfish, largescale (*Symbolophorus veranyi*)
J 30(1): 134 (length of a specimen taken in or off Gulf of Maine)

Lanternfish, spotted (*Myctophum punctatum*)
J 30(1): 134 (lengths of 8 specimens taken in or off Gulf of Maine)

Lanternfishes (species uncertain, or no common name yet assigned)
J 30(1): 134 (length or length ranges of several species taken in or off Gulf of Maine)
(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle of several species, SE coast of USA)

Lantz, Andrew William
S 1765 (processing effects on smoked goldeye texture)

Laprise, Jean-Pierre
J 30(2): 320(F) (objective analysis of seasonal thermocline)

Laqueus californianus (brachiopod)
S 1759 (description, from B.C.)

Lark, John George Irwin
J 30(1): 131 (early record of sea lamprey in L. Ontario)

Larkin, Peter Anthony
J 30(2): 229 (rainbow trout choice of feed colors)
(5): 695 (simple methods of estimating mortality rates of exploited fish populations)
(12,2): 1948 (contemporary methods, future trends in fishery management, development)

LaRoche, Gilles
J 30(3): 363 (copper-induced lesions in mummichog & Atl. silverside organs)

Larvae (*see also* name of adult form of organism; *also* Development)
T 401 (invertebrate, in St. Margaret's Bay, N.S., zooplankton, 1968-71)

Larvicide
J 30(3): 461 (preparation & properties of an aminophenol derivative, re metabolism of similar nitrophenol derivative used as lamprey larvicide)

Lateral line
J 30(3): 363 (mechanoreceptor lesions induced by copper in mummichog & Atl. silversides)

Lau, Janie K.C.

J 30(11): 1619 (behavior of chlorinated hydrocarbons in natural waters & their sediments)

Laurence, Geoffrey Cameron
J 30(3): 435 (temperature influence on embryonic & prolarval tautog energy utilization)

Lauzier, Louis Marcel
S 1837 (climatic changes in NW Atl. marine subarctic surface waters)

Law, Yin Ming Carolina
J 30(2): 283 (apparatus for stimulating olfactory activity in fishes)
S 1856 (olfactory response to amino acids by whitefish, brook & rainbow trout)

Leach, John Malcolm
J 30(4): 479 (identification of resinic & unsaturated fatty acids of kraft pulpmill effluent toxic to young coho salmon)

Leach, Joseph Henry
J 30(12,1): 1909 (first record of Chinese mitten crab from N America)

Lead and derivatives
J 30(4): 560 (influence on fish aminolevulinate dehydrase activity)
(7): 1014 (in organisms on Fraser R. mudflats, B.C.)
(8): 1240 (in Seattle harbor estuarial sediments)

Leaf (*see* Leaves)

Leaf River, Ungava, Que. (*see* Ungava, Que.)

Lean, David Robert Samuel
J 30(10): 1525 (movements of ^{32}P between its biologically important forms in lake water)

Lear, William Henry
T 353; 392 (size & age composition of Nfld. & Labrador commercial salmon catch)

Leaves
T 387 (zoobenthos response to addition of willow & alder to stream substrates)

LeBrasseur, Robin John
S 1754 (instability of ocean populations)
1799 (use of nutrients in enrichment of sockeye salmon nursery lakes, B.C.)
1800 (stability of enriched aquatic ecosystems)
1811 (microzooplankton in coastal & oceanic Pac. subarctic water mass)
1812 (maturing salmon utilization of herbivore zooplankton, NE Pac. Ocean)

Lech, John James
J 30(3): 461 (preparation & properties of an aminophenol derivative re metabolism of a similar nitrophenol derivative used as a lamprey larvicide)
(12,1): 1841 (degradation of TFM lampricide by bottom sediments)

Lecithaster (*see* Trematoda)

Lecithophyllum (trematode)
S 1832 (synonymy of *L. anteroporum* with *L. botryophorum*)

Lee, Arthur James
J 30(12,2): 2031 (NE Atl. fishery management: role of international council)

Lee, Donald J.
J 30(7): 1017 (liver changes in rainbow trout fed casein-gelatin & herring oil)

Leggett, William Claude
J 30(12,1): 1847 (adult American shad homing behavior)

LeGore, Richard Stephen
J 30(8): 1240 (resistance of threespine sticklebacks & coho salmon to pollutants in sediments dredged from an estuary, Seattle, Wash.)

Leim, Alexander Henry
B 155(F) (French edition of Bulletin 155 on Fishes of the Atlantic Coast of Canada)

Leiostomus xanthurus (*see* Spot)

Length (*see also* Age; Growth; Size; Weight)
J 30(1): 134 (of 23 mesopelagic fish species taken in & off Gulf of Maine)
(2): 235 (re age of Pac. ocean perch, NE Pac. Ocean)
(2): 299 (re age & maturity of round whitefish, Leaf R., Ungava, Que.)
(3): 409 (linear regressions in length-weight data for fishes)
(7): 1009 (100 cm at birth, Florida bottlenosed dolphin)
(8): 1065 (white whales, Hudson Bay)
(8): 1221 (re age of SE L. Michigan trout-perch)
B 180 (maximum or average, of most species of B.C. marine fishes)
184 (maximum or average, of most species of Canadian freshwater fishes)
T 338 (re age of some B.C. commercial groundfishes)
339 (re age & weight of SW Nfld. winter herring, 1965-66 to 1970-71)
340 (& age composition of Hecate Strait rock sole commercial landings, 1964-71)
345 (Pac. ocean perch off SW Vancouver Is., Sept. 1972)
353; 392 (re age of Atl. salmon in Nfld.-Labrador commercial catches)
365 (re fat & water content, Nfld. herring)

371 (B.C. pink salmon in catches & escapements in recent years)
S 1825 (of sei whales in N.S. catches)

Lens (*see* Eye)

Leonard, Edward Neil
J 30(4): 583 (acute & long-term copper accumulation in brown bullhead tissues)

Lepeophtheirus (*see* Caligidae)

Lepidophanes indicus (a mesopelagic myctophid fish; no common name yet assigned)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, off SE coast USA)

Lepidopsetta bilineata (*see* Sole, rock)

Lepidosiren paradoxa (*see* Lungfish (South American))

Lepisosteus oculatus (*see* Gar, spotted)
osseus (*see* Gar, longnose)

Lepomis auritus (*see* Sunfish, redbreast)
cyanellus (*see* Sunfish, green)
gibbosus (*see* Pumpkinseed)
macrochirus (*see* Bluegill)
megalotis (*see* Sunfish, longear)

Leptocottus armatus (*see* Sculpin, Pacific staghorn)

Leray, Claude
J 30(9): 1395(F) (^{125}I metabolism re yellow perch thyroid function)

Lerman, Abraham
S 1744 (flux rates of major ions from lake sediments into lake waters)

Lernaeopodidae
J 30(7): 881 (life cycle & morphology of *Salmincola californiensis* parasitic in sockeye salmon)
S 1783 (*Impexus hamondi*, new genus & species, with key to family genera)
1789 (*Alella* vs. *Anchorella* re taxonomy of *pagelli* species taxonomy)

Lesions (*see also* Disease; Pathology; Tumors)
J 30(3): 363 (copper-induced, in estuarine teleosts))
(4): 549 (re nephroblastoma in a rainbow trout)
(5): 681 (from columnaris disease in white suckers)
(7): 994 (of coho salmon from pathogenic fungus)
S 1733 (*Vibrio* infection as cause, in Atl. cod nasal region)

Lethal limits (*see also* Insecticides; Pesticides; Pollution; Survival; Toxicants; *also* factors influencing, e.g. Oxygen, dissolved; Respiration; Salinity; Temperature)
J 30(3): 401 (of splake, re temperature tolerance of forebears of this hybrid)
(8): 1226 (lower temperature, for smallmouth bass)
S 1736 (of pH for white suckers in waters subject to atmospheric SO_2 fallout)

Lethenteron japonicum (*see* Lamprey, Arctic, 2nd entry)

Leucichthys (*see Coregonus*)

Leung, Ted Tat Chi
S 1805 (hematological & histological effects of elemental phosphorus on Atl. herring)

Levings, Colin David
T 393 (sediment preference of blackbelly eelpout off Point Grey, B.C., also list of 37 other demersal species observed)

Levy, Eric Mark
J 30(2): 261 (dispersed & particulate petroleum residues in Gulf of St. Lawrence)

Li, Ming Fang
S 1733 (*Vibrio anguillarum* in Atl. cod nasal abcess)

Life cycle (*see also* Life history)
J 30(3): 333 (annual, of *Sagitta elegans* chaetognath, Bedford Basin, N.S.)
(7): 881 (*Salmincola californiensis* lernaeopodid parasite in sockeye salmon)
(7): 947 (*Eubothrium salvelini* cestode in young sockeye)
(8): 1065 (white whale, W Hudson Bay)

Life history (*see also* Life cycle; *also* aspects of, and names of organisms)
J 30(6): 811 (*Calanus plumchrus* in Strait of Georgia)
(8): 1215 (2 isolated Arctic char populations in spring-fed Alaskan river)
CNG 95 (stream insects of S Vancouver Is.)
B 180 (B.C. marine fishes)
184 (Canadian freshwater fishes)
T 304 (& distribution of Arctic lamprey, Great Slave L. region, N.W.T.)
S 1764 (Montana stoneflies)

Life span (*see* Longevity)

Light, reactions to (*see also* Darkness; Diel habits; Eye; Irradiation; Photochemistry; Photosynthesis; Vision)
J 30(9): 1349 (re *Homarus gammarus* lobster larval development)
(11): 1740 (environmental experience re later response of rainbow trout)
(12,1): 1771 (light intensity re phytoplankton photosynthesis rates)
(12,1): 1875 (effects on behavior of brown & rainbow trouts)
(12,1): 1898 (reciprocal photoperiod regime effect on standard rate of oxygen consumption of Atl. salmon)
T 378 (re young sockeye salmon vertical movements & feeding habits, Babine L., B.C.)

S 1742 (*Chlamydomonas* green alga oxygen exchange & photosynthesis)
1775 (re regeneration of scales & their silvery layers, in salmon)
1834 (light intensity effect on photosynthesis in an enriched B.C. lake)

Limanda ferruginea (*see* Flounder, yellowtail)

Limnodrilus (*see* Oligochaeta)

Limnology (*see also* Benthos; Eutrophication; Lakes; Pollution; Pond; Sediments; *also* Fisheries Research Board of Canada Experimental Lakes Area, northwestern Ontario)
J 30(2): 313 (submersible spectroradiometer & data acquisition system)
(3): 345 (determination of planktonic & sedimentary chlorophylls)
(4): 519 (re eutrophication of Okanagan Valley lakes, B.C.)
(7): 917 (thermal structure of Okanagan Valley lakes)
(9): 1389 (ammonia probe for electrometric determination of total NH_3-N in hypolimnetic lakes)
(10): 1409 (an overview of experimental approaches)
(10): 1409, 1415, 1469, 1475, 1485, 1491, 1501, 1511, 1537, 1547 (a series dealing with various physical, chemical, & biological aspects of lakes in the FRB Experimental Lakes Area, NW Ont., particularly of lake 227; *see also* articles on p. 1441, 1447, 1525, indirectly related to these topics)
T 337 (FRB Experimental Lakes Area, NW Ont.)
342 (Wood, Kalamalka, & Skaha lakes, Okanagan Valley, B.C.)
351 (chlorophyll *a* distribution in lakes Ontario & Erie surface waters)
376 (computer programming for calculating integral primary production in vertically stratified lakes)
384 (4 N.W.T. lakes re experimental cropping)
S 1744 (flux rate of major ions from lake sediments into lake water)

Lindane (*see* Hydrocarbons, halogenated; Insecticides)

Ling (*see* Burbot)

Lingcod (*Ophiodon elongatus*)
T 338 (B.C. landings 1961–71 & additional 1971 data)
398 (1972 B.C. commercial fishery catch & effort statistics)

Linolenic acid
S 1762 (reaction of oxidized, with sulfhydryl compounds)

Liopsetta putnami (*see* Flounder, smooth)

Lipase (*see* Enzymes; Lipids)

Lipids (*see also* Acids, fatty; Composition, chemical; Enzymes; Oils and fats)
S 1747 (diastereoisomerism of isoprenoid fatty acids re marine lipids & organic geochemistry)
1762 (oxidation product reactions)
1835 (model of interfacial orientation re lipase activity)

Lipogenys gilli (lipogenyid fish)
J 30(10): 1559 (description & distribution of new specimens of rare, from NW Atl.)

Lists of fishes (*see* Fishes, lists of)

Lists of publications (*see* Bibliographies; Publications, Fisheries Research Board of Canada; *also* Indexes)

Litchfield, Carter
S 1787 (chromatographic analysis of isomeric wax esters)

Lithology
B 182 (Gulf of St. Lawrence sediments)
S 1850 (Gulf of St. Lawrence marine geology)

Littorina littorea (*see* Periwinkle, common)

Liver (*see also* Liver oil)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of 9 species of fishes, SE coast USA)
(3): 471 (mercury & pesticide residues in Gulf of Maine & Bay of Fundy harbour seals)
(4): 583 (acute & long-term copper accumulation in brown bullhead)
(5): 643 (uptake of mercury in caged rainbow trout, S Saskatchewan R.)
(6): 841 (molybdenum uptake in rainbow trout & kokanee)
(6): 843 (mercury uptake in Atl. seals)
(7): 1017 (changes in rainbow trout, when fed casein–gelatin & herring oil)
(7): 1023 (physiological significance of 2 lactate dehydrogenase homotetramers from steelhead trout)
(8): 1053 (DDT & its metabolite residues in Canadian Atl. coast harp seals)
(9): 1293 (mercurials uptake by rainbow trout)
(11): 1733 (DDT & DDE residues in beluga whales, Mackenzie R. delta, N.W.T.)
S 1745 (mercury content of Canadian prairie ducks)
1805; 1806 (elemental phosphorus effects on Atl. herring)
1836 (methylmercury concentration in northern pike)

Liver oil
S 1772 (stereochemistry of hydrocarbon in basking shark)

Lobianchia dofleini (a mesopelagic myctophid fish; no common name yet assigned)
J 30(1): 134 (length ranges of 151 specimens taken in or off Gulf of Maine)
(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, off SE coast USA)

Lobster (European) (*Homarus gammarus*)
J 30(9): 1349 (larval development re hydrostatic pressure & light changes)

Lobster, American (*Homarus americanus*)
J 30(2): 279 (response to attractant odor solution in presence of bleached kraft mill effluent)
(2): 285 (tunnel digging in mud by newly settled)
(6): 775 (response of hungry vs. satiated, to sex hormones or chemical stimuli from other lobsters)
(6): 838 (orientation to odor)
(6): 856 (seasonal river discharge re local landings, Gulf of St. Lawrence)
(9): 1337 (proecdysis, setal development, & molt prediction)
(9): 1370 (causes of claw loss & other wounds in commercially caught)
(10): 1600 (does eyestalk ablation accelerate molting?)
(11): 1647 (digestive enzyme secretion after dietary variation)
(12,1): 1819 (abundance, survival, vertical & diurnal distribution of larvae in Northumberland Strait, 1962-63, re commercial stocks)
(12,1): 1905 (feed, feeding, & condition during seasonal cycle, Bonavista Bay, Nfld.)
T 377 (survival & condition in tide pond re feeding, cover, & stock density)
S 1751 (bunker C oil in muscle, gut, & stomach, N.S.)
1796 (isolation & properties of digestive amylase)
1848 (partial characterization of a natural agglutinin in hemolymph)
1855 (salinity reduction effects re gaffkemia infection)

"Lobster disease" (*see* Gaffkemia)

Loch, John Stephen
S 1854 (fish toxicity survey of effluents of 4 Canadian prairie pulpmill plants)

Lockhart, Wallace Lyle
S 1836 (clearance rate of methylmercury from northern pike tissues)

Locomotion (*see also* Movements; Swimming)
J 30(6): 725 (temperature & copper ions effect on goldfish orienting stimuli)
(12,1): 1789 (rate as index of oil & dispersant effect on an intertidal snail)
T 341 (actograph for recording of, for laterally or ventrally compressed aquatic organisms)

Logan, Vance Hugh
J 30(4): 549 (spontaneous nephroblastoma in a rainbow trout)
S 1805 (hematological & histological effects of elemental phosphorus on Atl. herring)

Logging (*see also* Pollution; Pulpmill effluents; Sawdust)
J 30(6): 853 (role of woody debris, re fish nest selection)
CNG 93 (re hindrance to stream spawning of Pac. salmon & trout)
T 385 (benthic detritus in log booming areas, Howe Sound, B.C., re pollution)
A 273 (effects of debris on salmonid production in small streams)
282 (debris re B.C. shoreline environment)

Logperch (*Percina caprodes*)
J 30(6): 761 (diel habits in Ont. lakes)
B 184: 797 (full description, etc., in Canada)

Long Harbour, Nfld. (*see* Placentia Bay, Nfld.)

Longevity (*see also* Age; Age determination)
J 30(8): 1065 (W Hudson Bay white whales)
B 181 (ringed seal)

Longhurst, Alan Reece
S 1754 (instability of ocean populations)

Lophius americanus (*see* Goosefish)

Lorenzen, Carl
S 1754 (instability of ocean populations)

Loring, Douglas Howard
B 182 (Gulf of St. Lawrence morphology & sediments)
S 1850 (Gulf of St. Lawrence marine geology)

Lota lota (*see* Burbot)

Lott, John Norman Arthur
J 30(12,1): 1771 (light intensity re phytoplankton photosynthetic rates, L. Ontario)

Love, John
T 369 (safety modification of vacuum closer canning machine)

Lovell, Richard Thomas
J 30(10): 1604 (variance in channel catfish fatty acids re diet)

Lucas, Cyril Edward
J 30(12,2): 1958 (scientific advice to fisheries bodies)

Luke, David McGregor
J 30(9): 1402 (pressure-sensing ultrasonic transmitter for tracking aquatic animals)

Lumpenus fabricii (*see* Eelblenny, slender)

Lumpfish (*Cyclopterus lumpus*)
B 184: 11 (observed in Canadian fresh or brackish waters)

Luna-Muñoz, Julio
J 30(12,2):2059 (financing resources for fishery development)

Lungfish (South American) (*Lepidosiren paradoxa*)
S 1768 (corticosteroids of blood plasma)

Lusz, Larry Dean
J 30(11): 1749 (portable wire-speed indicator for plankton nets)

Lycodopsis pacifica (*see* Eelpout, blackbelly)

Lyrodiscus (*see* Trematoda)

Lyubimova, Tatyana Georgievna
J 30(12,2):2196 (utilization of krill & other resources from world ocean)

M

MacCallum, Wallace Allison
J 30(1): 111 (obituary of)

MacCrimmon, Hugh Ross
J 30(11): 1740 (environmental experience effect on response of young rainbow trout to black & white substrates)
(12,1):1875 (illumination effects on behavior of brown & rainbow trouts exposed to black & white backgrounds)
B 165(F) (French edition of Bulletin on Carp in Canada)

MacDonald, John Roderick
J 30(9): 1392 (salmon & eel mortality from nitrogen supersaturation in water passing through hydroelectric turbines)

MacDougall, Yvonne M.
S 1805 (hematological & histological effects of elemental phosphorus on Atl. herring)

Macedo, Dan
J 30(12,1):1880 (fish fat content determination with a nontoxic, noninflammable solvent)

Macek, Kenneth Joseph
J 30(2): 323 (Na nitrilotriacetate effect on gill condition & survival of fathead minnow & bluegill)

MacKay, Kenneth Tod
J 30(12,1):1911 (four fishes new to the Canadian Atlantic)

MacKelvie, Robin Maxwell
S 1808 (elemental phosphorus as probable cause of herring morbundity, Placentia Bay, Nfld.)

MacKenzie, W. C.
J 30(12,2):2065 (reconciling economics groups in fisheries management)

Mackenzie River, N.W.T.
J 30(11): 1733 (DDT residues in beluga whales of delta region)

Mackerel, Indian (*Rastrelliger kanagurta*)
J 30(2): 305 (extending shelf life of iced, by irradiation)

Mackerel, Spanish (*Scomberomorus maculatus*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, SE coast USA)

Mackie, Gerald Lloyd
J 30(2): 167 (abundance & diversity of Mollusca in an industrialized part of Ottawa R.)

MacKinnon, James Cornelius
J 30(11): 1717 (analysis of energy flow & production of an unexploited marine flatfish population)

MacLeod, John Cameron
J 30(4): 485 (temperature effects on mercury accumulation, toxicity, & metabolic rate in young rainbow trout)
S 1854 (fish toxicity survey of effluents of 4 Canadian prairie pulpmills)

Macoma balthica (*see* Clams (marine))

Macrophthalmia (*see* Eye)

Macrophytes (*see* Algae; Seaweeds)

Macrura (Decapoda)
S 1838 (brief description & distribution of SE Vancouver Is., including a new species, *Spirontocaris macrodonta* (as of 1930))

Mactaquac Dam, Saint John River, N.B.
J 30(9): 1392 (nitrogen supersaturation in water passing through hydroelectric turbines)

Madtom, brindled (*Noturus miurus*)
B 184; 619 (full description, etc., in Canada)

Madtom, tadpole (*Noturus gyrinus*)
B 184: 615 (full description, etc., in Canada)

Magnesium derivatives
S 1744 (flux rate of Mg ion from lake sediments into lake waters)
1830 (in primary wing feathers of waterfowl)

Magnetic field
J 30(5): 657 (lack of conditioned cardiac response of American eel & Atl. salmon to, re geomagnetic field as guide to migration)
(10): 1581 (apparatus for simulating motion of animals through geomagnetic field)

Maine, Gulf of (*see also* Fundy, Bay of; Oceanography, northwest Atlantic coastal)
J 30(1): 134 (lengths of fishes of 23 mesopelagic species taken in the Gulf & adjacent continental slope, including 9 records of new species for the Gulf)
(3): 471 (mercury, DDT, & PCB residues in Atl. harbour seals)
(9): 1363 (probable cause of *Gonyaulax tamarensis* red tide bloom in 1972)

Malate
J 30(7): 927 (dehydrogenase isozymes re taxonomic discrimination of walleye, sauger, & their suspected hybrids)
S 1758 (rabbit & Atl. cod testicular tissue malic enzymes)

Malformation (*see* Abnormality)

Mallards (*see* Ducks)

Mallotus (*see* B 180: 141)
villosus (*See* Capelin)
T 368 (bibliography of)

Malonaldehyde
S 1762 (reaction with sulfhydryl compounds, re hydrolysis of lipids)

Mammals, aquatic (*see also* Dolphin; Narwhal; Porpoise; Sea lion; Sea otter; Seal; Whale; Whales)
A 291 (habitats & status of some Canadian coastal)

Management (*see also* Conservation; Economics; Fisheries; Hatchery)
J 30(2): 249 (comparison of B.C. inshore salmon fishery strategy with that of Nfld. offshore fishery & Cornish oyster fishery)
(6): 799 (re temperature effects on lake herring embryonic development)
(12,2): entire issue (proceedings of FAO Technical Conference on Fishery Management and Development (Vancouver, B.C. Feb. 13–23, 1973); *see* separate index in that issue)
B 180: 8, etc. (B.C. marine fisheries)
181 (ringed seal populations, E Canadian arctic)
184 (commercially important Canadian freshwater fisheries)
CJG 20 (Gulf of St. Lawrence redfish fishery)
T 387 (of streamside vegetation re zoobenthic feed of salmonids)
S 1756 (of fisheries, particularly as applying to Canadian)
1846 (of fisheries re ecological subsystems)
A 289 (re biological considerations of Canadian coastal zone fisheries)
294 (of ringed seal populations for Eskimo utilization)

Manganese derivatives
J 30(7): 1014 (in organisms on Fraser R. mudflats, B.C.)
(9): 1287 (concentrations in bluefish & blue antimora muscle re total body weight)
S 1830 (in primary wing feathers of waterfowl)

Manitoba (*see also* Hudson Bay; Winnipeg; Winnipeg, Lake; *also* other localities and bodies of water)
B 184 (freshwater fishes of)

Mann, John Howard
S 1821; 1822 (quality of sockeye salmon canned after chilled or partially frozen storage of fish)

Mann, Kenneth Henry
S 1790 (green sea urchin energy transformations, St. Margaret's Bay, N.S.)
1792 (multivariate analysis for identifying benthos functional components)
1793 (productivity & energy flow in R. Thames, Eng.)

Manohar, Shriram Vajudeo
J 30(5): 685 (Na tripolyphosphate effect on thaw-drip & taste of fillets from various freshwater fishes)

March, Beryl Elizabeth
S 1734 (dogfish meals as poultry ration supplements)

Marcy, Barton C., Jr.
J 30(8): 1195 (vulnerability & survival of 9 freshwater fish species re thermal & other effects of nuclear power plant discharge)

Margolis, Leo
J 30(3): 469 (additional notes to author's earlier review of polychaetes as intermediate hosts of helminth parasites of vertebrates)
S 1802 (redescription of *Podocotyle shawi* as *Plagioporus shawi* trematode)
A 278 (parasitism by *Entobdella soleae* monogenetic trematode)

Mariculture (*see* Aquaculture)

Marine science (general)
J 30(12,2): various papers (in special issue on proceedings of FAO Technical Conference of Fishery Management & Development)
S 1748 (as a challenge to chemists: research activities of FRB)
1749 (& technology in Canada)

Marion Lake, B.C.
J 30(6): 787 (test of mathematical model for rainbow trout predation on epibenthos)

Marketing (*see also* Economics; Fisheries; Management)
J 30(12,2): (*see* separate index to that issue on proceedings of FAO Technical Conference on Fishery Management and Development (Vancouver, B.C., Feb. 13–23, 1973))

Marking (*see also* Migration; Tagging)

T 348; 372 (sockeye salmon fry, Babine L., B.C.)
S 1810 (instantaneous explosive branding device for seals)

Marking, Leif Lester
J 30(8): 1047 (TFM lampricide toxicity to early life stages of rainbow trout)

Marr, John Cassidy
J 30(12,2): 2312 (management & development of Indian Ocean fisheries)

Martin, Jean-Louis Marceau
J 30(1): 41(F) (*Carcinus maenas* shore crab metabolism in hepatopancreas during intermolt cycle & in ovary during ovogenesis)

Maskinonge (*see* Muskellunge)

Mason, Barbara Jean
J 30(10): 1565 (bioassay procedures for acute toxicity of neutralized kraft pulpmill effluent to young sockeye, pink, & chum salmon)

Matamek Lake, Que.
J 30(7): 1012 (brook trout homing)
(7): 1033 (estimating stream populations of premigrating brook trout)

Matamek River, Que.
J 30(10): 1586 (postglacial colonization by fishes)

Mathematical treatment of data (*see also* Computer programming; Models, mathematical)
J 30(1): 53 (balanced vs. geostrophic wind-stress on waters (Hudson Bay))
(3): 409 (linear regressions in fishery research)
(4): 509 (optimum economic yield of a fishery, given a variable output price)
(4): 576 (optimum control theory applied to a dynamic aquatic ecosystem)
(5): 695 (simple methods of estimating mortality rates of exploited fish populations)
(9): 1275 (re impossibility of maintaining peak-period yields from stocks of Pac. salmons & other fishes)
T 346 (ultrasonic method for parasite detection in fish)
380 (energy changes re wind mixing in open ocean)
S 1817 (re use of radioactive isotopes to measure transfer of materials in aquatic feed chains)

Mathews, Christopher P.
S 1793 (productivity & energy flow, R. Thames, Eng.)

Mating (*see* Spawning; Reproduction)

Matis, James Henry
J 30(6): 725 (interaction of temperature & copper ions re goldfish locomotor behavior)

Matter, particulate (in natural waters) (*see also* Production, primary; Sediments)
J 30(10): 1537 (carbon determination & concentrations in 2 FRB Experimental Lakes Area lakes, NW Ont.)
(11): 1611 (re accommodation of residual fuel oils in sea water)
T 379 (direct measurement of concentration with Coulter Counter)
403 (computer programs for processing data of, collected by Coulter Counter)
S 1781; 1786 (size distribution in several oceans)
1786 (total count & volume in NW Atl. water at various depths)

Maturity; Maturation (*see also* Gonads; Growth; Hormones; Reproduction)
J 30(2): 299 (re age & growth of round whitefish, Leaf R., Ungava, Que.)
(5): 607 (size at, re age & growth of white sucker populations)
(7): 975 (thermal requirements for brook trout)
(7): 1009 (re age & growth, bottlenosed dolphin, Florida)
(8): 1065 (age of, W Hudson Bay white whales)
(8): 1255 (Pac. halibut sexual ripening in captivity)
S 1739 (sexual, of horse clam in S B.C.)
1770 (induction of precocious sexual in male pink salmon)
1833 (induction of precocious sexual in female pink salmon)
1842 (changes in oxytocic activity of chinook salmon hypophysis during sexual)

Maurolicus muelleri (*see* Pearlsides, Müller's)

Maxwell, James Rankin
S 1747 (isoprenoid fatty acid diastereoisomerism re marine lipids & organic geochemistry)
1772 (naturally occurring marine tetramethylpentadecane stereochemistry)
1797 (gas chromatographic analysis of stereoisomers of acyclic isoprenoid fatty acids)

May, Arthur William
T 353 (size & age composition of Nfld. & Labrador commercial salmon catch)
S 1794 (thick-billed murre mortality in W Greenland salmon fishery)

Mayflies (*see* Ephemeroptera)

McAllister, Carey Douglas
S 1799 (use of nutrients in enrichment of sockeye salmon nursery lakes, B.C.)
1800 (stability of enriched aquatic ecosystems)
1813 (transfer of primary to secondary production at Pac. Ocean Station P)
A 280 (comparative studies of Gulf of Alaska, Gulf of St. Lawrence, & Strait of Georgia)

McAllister, Donald Evan

T 368 (bibliography of the smelt family (over 1800 titles, 1553–1972))

McBride, John Raymond
J 30(8): 1099 (testosterone derivative for promoting young coho & chinook salmon weight increases)

McBurney, David Ralph
T 377 (lobster survival & condition in tide pond re feeding, cover, & stock density)

McCart, Peter
J 30(8): 1215 (life history of 2 isolated Arctic char populations in spring-fed tributaries of Canning R., Alaska)

McCauley, Robert William
J 30(8): 1253 (temperature selection by temperature-acclimated yellow perch)

McCleave, James David
J 30(4): 563 (occurrence of shortnose sturgeon, an endangered species; correction on J 30(8): 1257)
(5): 657 (sensitivity of American eel & Atl. salmon to weak electric & magnetic fields, re oceanic electric fields as migration guides)

McComas, Frank Terrence
T 396 (mercury distribution in sediments & waters of Howe Sound, B.C.)

McCormick, John Howard
J 30(7): 975 (thermal requirements for brook trout maturation, spawning, & embryo survival)

McDaniel, Neil Glenn
T 385 (benthic macroinvertebrates & solid pollutants in Howe Sound, B.C.)

McDonald, Ian
S 1793 (productivity & energy flow, R. Thames, Eng.)

McDonald, John George
T 348; 372 (trapping & marking sockeye salmon fry, Babine L., B.C.)
378 (young sockeye diel vertical movements & feeding habits, Babine L.)
390 (purse seine catches of sockeye, etc., Babine L., 1972)

McGlamery, Merrill Hart
J 30(11): 1641 (brown bullhead cell microculture for use in channel catfish virus & antibody quantitation)

McIntyre, John Demaris
J 30(1): 137 (genetic analysis of steelhead trout hatching time)

McKim, James Montgomery
J 30(4): 583 (acute & long-term copper concentration in brown bullhead tissues)

McLean, Margaret P.
T 342 (bottom fauna survey of certain Okanagan Valley lakes, B.C.)

McLeay, Donald James
J 30(3): 395 (effects of long exposure of young coho salmon to kraft pulpmill effluent)

McLeese, Donald Wilson
J 30(2): 279 (lobster response to attractant odor in presence of pulpmill effluent)
(6): 775 (chemical communication among lobsters)
(6): 838 (lobster orientation to odor)
(10): 1600 (does eyestalk ablation accelerate lobster molting?)

Meal (*see* Digestion; Feed; Ration)

Meal, fish (*see* Fishmeal)

Medusae (*see* Cnidaria; Coelenterata; Hydroida; Jellyfishes)

Megaloptera (alderflies)
CNG 95 (life cycle & description of *Sialis*)

Megaptera nodosa (*see* Whale, humpback)

Megascolecidae (*see also* Oligochaeta)
S 1845 (of NE USA)

Mehrle, Paul Martin, Jr.
J 30(1): 31 (endrin pesticide toxicology in rainbow trout)
S 1836 (clearance rate of methylmercury from northern pike tissues)

Melanogrammus aeglefinus (*see* Haddock)

Melosira sp. (*see* Photosynthesis)

Menidia menidia (*see* Silverside, Atlantic)

Mercenaria mercenaria (*see* Quahog, northern)

Mercer, Malcolm Clarence
J 30(8): 1111 (observations on odontocete Cetacea in NW Atl.)

Mercury and derivatives
J 30(2): 275 (content of various fishes, inshore & offshore SE coast of USA)
(2): 293 (concentration in sea water & a pelagic feed chain (zooplankton through invertebrates to fishes))
(3): 454 (total mercury & methylmercury content of American eels, N.S.)
(3): 471 (in Bay of Fundy & Gulf of Maine harbour seals)
(4): 485 (temperature effects on accumulation in

rainbow trout muscle, re toxicity & metabolic rate)
(5): 643 (uptake (mainly as methylmercury) by caged rainbow trout, S Saskatchewan R.)
(6): 843 (in tissues of Atl. seals)
(7): 1014 (in crabs & molluscs from Fraser R. mudflats vs. other B.C. coastal areas)
(8): 1240 (in Seattle harbor estuarial sediments)
(8): 1251 (sampling swordfish edible muscle for total)
(9): 1293, (10): 1575 (methyl-^{203}Hg chloride vs. ^{203}Hg chloride uptake rate by rainbow trout principally through gills; uptake into various organs)
(9): 1404 (correction to paper on removal from fish protein concentrates in J 29(12): 1777)
(10): 1575 (electron microprobe gill tissue scans, re uptake by rainbow trout)
T 388 (level in cultured sablefish fed dogfish rations)
396 (distribution in sediments & waters of Howe Sound, B.C.)
S 1745; 1801 (in muscle & liver of various Canadian prairie duck species)
1836 (clearance rate of methylmercury from northern pike tissues)

Mergansers (*see* Ducks)

Meristic characteristics (*see also* Morphology; Species, new; *also* Length; Size; Weight; *also* meristic features, e.g. Fins; Scales)
J 30(4): 557 (re longnose sucker hybrid with white sucker)
(10): 1559 (*Lipogenys gilli* rare fish)
(12,I): 1831 (*Bathyraja richardsoni* deepwater skate)

Merluccius bilinearis (*see* Hake, silver)
productus (*see* Hake, Pacific)

Metabolism (*see also* Activity; Bioenergetics; Stress; Swimming; *also* names of metabolic functions, e.g. Digestion; Respiration)
J 30(1): 41(F) (*Carcinus maenas* shore crab: water, protein, & soluble nitrogen of hepatopancreas during intermolt cycle & of ovary during ovogenesis)
(1): 45 (changes in unfrozen & thawed sea scallop adductor muscle)
(3): 379 (rate of sockeye salmon re critical swimming speed, size, & temperature)
(3): 409 (linear regressions in data for metabolic rate of fishes)
(3): 435 (temperature influence on embryonic & prolarval tautog energy utilization)
(4): 485 (temperature effects on rainbow trout metabolic rate, re mercury accumulation in muscle)
(4): 499 (sodium pentachlorophenate effect on young sockeye salmon feed)
(5): 623 (evaluation of method for estimating feed consumption rates of fish)
(8): 1179 (re ninespine stickleback energy budget in an Alaskan arctic lake)
(9): 1301 (& biliary excretion of introduced dye by rainbow trout)
(9): 1327 (feed conversion efficiency in walleye)
(9): 1395(F) (sodium iodide & thyroxine re yellow perch thyroid function)
S 1734 (bioenergetics of dogfish meal as poultry ration supplement)
1735 (bioenergetics of milk, fishmeal, & soybean meal proteins as milk replacers in calf rations)
1774 (of pure isomers of polychlorinated biphenyls in pigeons, rats, & brook trout)
1786 (activity of microorganisms in NW Atl. waters)
1823 (arginine role in *Aeromonas salmonicida*)

Metal ions (*see* Toxicants; *also* names of metallic elements)

Metamorphism; Metamorphosis (*see* Development; Molting)

Meteorology (*see* Climate; Season; Storms; Wind effects)

Methylamines (*see* Dimethylamine; Trimethylamine; Trimethylamine oxide)

Methylmercury (*see* Mercury and derivatives)

Mexico, Gulf of
B 184: 10 (list of freshwater fishes in Canadian portion of drainage basin)

Michigan, Lake (*see also* Great Lakes)
J 30(5): 702 (cooking effects on chlorinated hydrocarbon residues in flesh of coho & chinook salmon)
(8): 1221 (trout-perch age, growth, spawning season, & fecundity in SE)
(10): 1447 (numerical model for determining integral primary production)

Microbes (*see also* Bacteria)
S 1786 (microbial biomass estimates of NW Atl. biomass)

Microgadus tomcod (*see* Tomcod, Atlantic)

Microorganisms (*see* types of, e.g. Bacteria; Plankton)

Micropterus dolomieui (*see* Bass, smallmouth)
salmoides (*see* Bass, largemouth)

Microscopy, electron
S 1818 (improved filtration techniques for preserving microalgae for)

Microstomus pacificus (*see* Sole, Dover)

Midges (for nonbiting, *see* Chironomidae; for biting, *see* Ceratopogonidae; *see also* Blepharoceridae)

Migration (*see also* Behavior; Distribution; Homing; Locomotion; Marking; Movements; Spawning; Swimming; Tagging; Tracking)
J 30(1): 124 (transatlantic, of a harp seal)
(1): 128 (modified stakenet for collecting migrating Atl. salmon smolts)
(4): 551 (diel, of *Aglantha digitale* trachymedusa, Saanich Inlet, B.C.)
(5): 657 (electrosensitivity of American eel & Atl. salmon re oceanic electric fields as possible guide for)
(6): 761 (vertical diel, of various Ont. lake fishes)
(8): 1065 (white whale, W Hudson Bay)
(9): 1309 (tracking mature Fraser R. pink salmon coastal movements ultrasonically)
B 180 (habits, of most B.C. marine fishes)
184 (habits, of many Canadian freshwater fishes)
T 349 (snow crabs, Gulf of St. Lawrence)
S 1830 (chemical elements in duck feathers re geographical origins)
1839 (adult sockeye salmon, Puget Sound, Wash., to Fraser R., B.C. (as of 1919))

Milam, Paul
S 1764 (Montana stoneflies)

Milk
S 1735 (fishmeal as replacer for, in calf rations)

Miller, Douglas Colenso
T 400 (red sea urchin resources, B.C.)

Miller, Robert Joseph
CJG 19 (Canadian Atl. sea urchin fishery)
S 1790 (energy transformations by green sea urchin, St. Margaret's Bay, N.S.)

Milt (*see* Spawning)

Mine wastes (*see also* Toxicants; *also* names of metallic elements, particularly Copper; Lead; and Zinc)
J 30(8): 1147 (lime-neutralized iron hydroxide suspensions: effect on fathead minnow survival, growth, & reproduction)

Miner, Michael
S 1764 (Montana stoneflies)

Mineral constituents; Mineral content (*see also* Composition, chemical; *also* names of elements and organisms; for uptake from pollution, *see* Pollution; Toxicants; *also* names of elements)
J 30(1): 71 (of Pac. halibut & chinook salmon flesh re quality after brine- vs. plate-freezing of the fish at sea)
(2): 275 (muscle & organs of various inshore & offshore fishes, SE coast USA)

Mink River, Man.
J 30(3): 357 (diet, spawning, & environment of creek chub)

Minnow, bluntnose (*Pimephales notatus*)
J 30(6): 761 (diel habits in Ont. lakes)
B 184: 476 (full description, etc., in Canada)

Minnow, brassy (*Hybognathus hankinsoni*)
B 184: 414 (full description, etc., in Canada)

Minnow, cutlips (*Exoglossum maxillingua*)
B 184: 412 (full description, etc., in Canada)

Minnow, fathead (*Pimephales promelas*)
J 30(2): 317 (re feed selection by northern pike)
(2): 323 (sodium nitrilotriacetate effect on gill condition & survival)
(8): 1147 (effect of lime-neutralized iron hydroxide suspensions on survival, growth, & reproduction)
(12,1): 1811 (Captan fungicide toxicity to)
B 184: 480 (full description, etc., in Canada)

Minnow, pugnose (*Notropis emiliae*)
B 184: 453 (full description, etc., in Canada)

Minnow, silvery (*Hybognathus nuchalis*)
B 184: 417 (full description, etc., in Canada)

Minytrema melanops (*see* Sucker, spotted)

Miramichi River, N.B.
J 30(6): 779 (recent changes in Atl. salmon stock composition)

Misra, Rajendra Kumar
J 30(12,1): 1901 (hybridization of sunfishes)

Mitchell, Edward Dick, Jr.
S 1825 (catches & biological data, NW Atl. sei whales)
1826 (exploitation, catches, tagging, etc., NW Atl. fin whales)
1851 (short pulse length audio frequency sounds re minke whale echolocation)
A 293 (general biology & behavior of finner whales)

Mitochondria
S 1758 (malic enzyme activity in rabbit & cod testicular tissue)

Miyake, Mikio
S 1857 (upper layer modification at Pac. Ocean Station P)

Möcklinghoff, Gero
J 30(12,2): 2402 (management & development of N Atl. fisheries)

Models, mathematical (*see also* Mathematical treatment of data)
J 30(6): 787 (for risk of epibenthic prey to predation by rainbow trout)
(7): 939 (delay-differential equation, for fisheries population biomass)

(7): 998 (simple dynamic pool vs. surplus production, re fishery yield)
(10): 1447, 1469 (for primary production in lake waters)
(11): 1629 (optimal dynamics re Beverton–Holt model of a commercial fishery)
(11): 1717 (re energy flow & production of an unexploited American plaice population, St. Margaret's Bay, N.S.)
T 381 (physical factors of B.C. coast waters re herring population sizes)
383 (experimental cropping of N.W.T. lakes)
S 1771; 1828 (predicting dissolved oxygen levels in upper zone, Alberni Inlet, B.C.)
1846 (re ecological subsystems in fisheries management)
1857 (re upper water layer modification at Pac. Ocean Station P)
1858 (a time-dependent, of the upper ocean)

Modiolus demissus (*see* Mussel, Atlantic ribbed)
modiolus (*see* Mussel, northern horse)

Moiseev, P. A.
J 30(12,2):2109 (development of fisheries for traditionally exploited species)

Moisture content (*see* Water content)

Mola mola (*see* Sunfish, ocean)

Mollusca (*see also* subclassifications, e.g. Cephalopoda; Gastropoda; Pteropoda; *also* species, e.g. Abalone; Clam; Clams; Cockle; Mussel; Oyster; Quahog; Periwinkle; Scallop; Squid; etc., *also* Shell; Shellfish)
J 30(2): 167 (abundance & diversity of 19 Gastropoda & 22 Pelecypoda in an industrialized portion of Ottawa R.)
(4): 493 (re ecology of sawdust-bearing substrate of a river estuary)
(9): 1261 (in American plaice feed)
T 385 (benthic, near shoreline of Howe Sound, B.C., re pollution)
A 279 (aquaculture in B.C.)

Molly, sailfin (*Poecilia latipinna*)
B 184: 10 (established in thermal basin, Banff National Park, Alta.)

Molting; Ecdysis
J 30(1): 41(F) (*Carcinus maenas* shore crab hepatopancreas metabolism during intermolt cycle)
(9): 1337 (proecdysis, setal development, & molt prediction in American lobster)
(10): 1600 (does eyestalk ablation in lobster accelerate molting?)

Molybdenum and derivatives
J 30(6): 841 (in rainbow trout & kokanee tissues from molybdenum-containing waters)

Monodiamesa (*see* Chironomidae)

Monogenea (*see also* Trematoda)
S 1832 (of NE Pac. ocean perch)
A 278 (re discussion of parasitism by *Entobdella soleae*)

Montana, USA
S 1764 (description, etc., of 119 stonefly species)

Montsweag Bay, Maine
J 30(4): 563 (occurrence of shortnose sturgeon, an endangered species; correction on J 30(8): 1257)

Mooneye (*Hiodon tergisus*)
B 184: 333 (full description, etc., in Canada)

Moore, James Edmund
T 351 (chlorophyll *a* distribution in lakes Ontario & Erie surface waters, 1970)

Moore, James Walter
J 30(1): 7 (quantitative seasonal grazing of larval lampreys on algae)

Moores, John Arthur
J 30(6): 860 (first record of alewife & probable spawning, E. Nfld.)

Mora, Emilio Chavez
J 30(1): 116 (production of agglutinating antibodies in channel catfish against columnaris disease bacterial pathogen)

Morone americana (*see* Perch, white)
chrysops (*see* Bass, white)
saxatilis (*see* Bass, striped)

Morphology; Morphometry (biological) (In many cases morphological data pertaining to organisms will be found in references given under names of the organisms and of anatomical structures. For data on new species, *see* Species, new. *See also* Abnormality; Anatomy; Cytology; Histology; Length; Meristic characteristics; Size; Species, new records)
J 30(3): 409 (linear regressions for morphometric analysis in fisheries research)
(6): 729 (10 *Lepeophtheirus* Caligidae species from B.C. fishes)
(7): 881 (*Salmincola californiensis* parasitic in sockeye salmon)
(8): 1111 (NW Atl. odontocete Cetacea)
(8): 1155 (new & previously described *Lyrodiscus* monogenean trematodes from Great Lakes fishes)
(8): 1230 (dusky rockfish)
(10): 1559 (*Lipogenys gilli* rare fish)
(10): 1597 (*Gaetanus intermedius* calanoid)
(11): 1655 (*Ichthyocodium sarcotretis* hydroid on *Sphyrion lumpi* parasitic copepod)
(11): 1729 (re assignment of *Raja richardsoni* deepwater skate to *Bathyraja*)
(11): 1752 (*Anguilla rostrata* eels in waters over E North American continental shelf)

(12,1): 1831 (*Raja richardsoni* deepwater skate)
(12,1): 1890 (of chinook salmon open-jaw syndrome)
(12,1): 1901 (re hybridization of sunfishes)
B 180 (325 species of B.C. marine fishes)
184 (181 species of Canadian freshwater fishes)
T 361 (of alimentary tract of some N Atl. fishes re feed habits)
400 (red sea urchin, B.C.)
S 1753 (Palaearctic & Nearctic Chaoboridae)
1764 (119 species of Montana stoneflies)
1782 (male *Caligus chelifer* parasitic copepod)
1795 (re chemoreception & physiology of fishes)

Morphology (physical) (*see also* Geology; Glaciation; Limnology)
B 182 (& sediments, Gulf of St. Lawrence)
T 384 (of 4 N.W.T. lakes re biological cropping investigations)

Morrison, Carol Marianne
J 30(10): 1583 (gross structure of adductor muscles of some pelecypods)

Mortality (*see also* Disease; Insecticides; Lethal limits; Pesticides; Piscicides; Pollution; Predation; Survival; Toxicants)
J 30(1): 1 (sockeye salmon fry, after starvation & subsequent feeding)
(4): 568 (temperature effects on virus-infected young channel catfish)
(5): 695 (simple methods of estimating rates, for exploited fish populations)
(9): 1345 (*Macoma balthica* clam in Hudson Bay)
(9): 1392 (salmon & eels from nitrogen supersaturation in water passing through hydroelectric turbines)
T 348 (re fin-marking of sockeye salmon fry)
S 1794 (thick-billed murres in W Greenland salmon fishery)
1805; 1806; 1807; 1809 (of Atl. herring, etc., from elemental phosphorus pollution, Placentia Bay, Nfld.)

Moshenko, Robert W.
J 30(3): 357 (diet, spawning, & environment of creek chub, Mink R., Man.)

Mosquitofish (*Gambusia affinis*)
B 184: 10 (established in thermal basin, Banff National Park, Alta.)

Moulting (*see* Molting)

Mounce, Donald Edward
CNG 95 (guide to S Vancouver Is. stream insects)
T 387 (zoobenthos response to vegetable additions to stream substrates)

Mounib, M. Said
S 1758 (rabbit & Atl. cod testicular tissue malic enzymes)

Mouth (*see also* Buccal funnel; Jaw; Teeth)
B 184: 23 (schematic diagrams of shape, in Canadian redhorse & sucker species)

Movements (*see also* Behavior; Currents; Distribution; Locomotion; Migration; Orientation; Swimming)
J 30(6): 761 (day, twilight, & night, of 21 Ont. lake fish species)
T 349 (snow crabs, Gulf of St. Lawrence)
378 (diel vertical, young sockeye salmon at Babine L., B.C.)

Moxostoma anisurum (*see* Redhorse, silver)
carinatum (*see* Redhorse, river)
duquesnei (*see* Redhorse, black)
erythrurum (*see* Redhorse, golden)
hubbsi (*see* Redhorse, copper)
macrolepidotum (*see* Redhorse, shorthead)
valenciennesi (*see* Redhorse, greater)

Mrosovsky, Nicholas
S 1741 (body temperature of a warm turtle from cold water)

Mud (*see* Sediments)

Mudminnow, central (*Umbra limi*)
B 184: 341 (full description, etc., in Canada)

Mueller, Leonard Henry
J 30(12,1): 1811 (Captan fungicide toxicity to fathead minnow, bluegill, & brook trout)

Mugil cephalus (*see* Mullet, striped)

Mullet, striped (*Mugil cephalus*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, SE coast USA)

Mulligan, Hugh Francis
J 30(9): 1363 (probable cause of *Gonyaulax tamarensis* red tide bloom in Gulf of Maine, 1972)

Mummichog (*Fundulus heteroclitus*)
J 30(3): 363 (copper-induced lesions in various organs)
B 184: 635 (full description, etc., in Canada)

Mundie, John Harold
T 387 (zoobenthos response to vegetable additions to stream substrates)

Murre, thick-billed (*Uria lomvia*)
S 1794 (mortality of, in W Greenland salmon fishery)

Murty, Tadepalli Satyanarayana
J 30(1): 53 (balanced vs. geostrophic wind-stress for Hudson Bay)

Muscle (*see also* Drip; Fillets; Proteins; Quality of fishery products)

J 30(1): 45 (adductor, of sea scallop: hexose monophosphate accumulation & related metabolic changes in unfrozen & thawed)
(1): 91 (formaldehyde determination in fish muscle)
(2): 157 (Atl. cod: seasonal effect on protein salt-extractability, & stability during frozen storage)
(2): 187 (genetics of dehydrogenase isozymes in white, of lake whitefish)
(2): 275 (As, Cd, Cu, Hg, & Zn content of various inshore & offshore fishes, SE coast USA)
(2): 325 (function of red & white re fish swimming speed & stamina)
(3): 471 (mercury & pesticide residues in Gulf of Maine & Bay of Fundy harbour seal)
(4): 485 (temperature effect on mercury derivative accumulation in rainbow trout)
(6): 841 (molybdenum uptake in rainbow trout & kokanee)
(6): 843 (mercury uptake in Atl. seals)
(8): 1053 (DDT & its metabolite residues in Canadian Atl. coast harp seals)
(8): 1205 (naturally formed formaldehyde effect on salt-extractable proteins in gadoid fishes)
(8): 1251 (sampling swordfish edible, for total mercury analysis)
(9): 1287 (metallic contaminants in bluefish & blue antimora white muscle re total body weight)
(9): 1293 (uptake of mercurials by rainbow trout)
(10): 1583 (gross structure of pelecypod adductor)
(11): 1733 (DDT & DDE residues in beluga whales, Mackenzie R. delta, N.W.T.)
S 1745; 1801 (mercury content of Canadian prairie duck breasts)
1806 (elemental phosphorus effects on Atl. herring)

Musick, John Andrew
J 30(1): 134 (23 mesopelagic fishes from Gulf of Maine & adjacent continental slope)

Muskellunge (*Esox masquinongy*) (maskinonge)
B 184: 363 (full description, etc., in Canada)

Mussel, Atlantic ribbed (*Modiolus demissus*)
J 30(10): 1583 (gross structure of adductor muscle)

Mussel, bay (Pacific) (*Mytilus edulis*)
J 30(7): 1014 (mercury content, Fraser R. mudflats, B.C.)

Mussel, blue (*Mytilis edulis*)
J 30(7): 867(F) (seasonal settling in St. Lawrence R. estuary)
(9): 1385 (growth rate as indicator of pollution)
(10): 1583 (gross structure of adductor muscle)

Mussel, northern horse (*Modiolus modiolus*)
J 30(10): 1583 (gross structure of adductor muscle)

Mya arenaria (*see* Clam, mud; Clam, softshell)

Mycosis (*see* Fungi)

Myctophidae (*see also* Headlightfish; Lampfishes; Lanternfishes)
J 30(1): 134 (lengths of specimens of various species taken in or off Gulf of Maine)
(2): 275 (As, Cd, Cu, Hg, & Zn content, various species off SE coast USA)

Myctophum punctatum (*see* Lanternfish, spotted)

Myers, Jack
S 1742 (Kok effect in *Chlamydomonas reinhardi* green alga re oxygen exchange & photosynthetic evolution)
1743 (amperometric measurement of hydrogen evolution in *C. moewusii*)

Mylocheilus caurinus (*see* Peamouth)

Myoxocephalus quadricornis (*see* Sculpin, deepwater)
octodecemspinosus (*see* Sculpin, longhorn)

Mysidacea
J 30(11): 1747 (some aspects of *Mysis stenolepis* osmoregulation)
T 342 (*Mysis relicta* in survey of bottom fauna, Kalamalka Lake, B.C.)

Mysis (*see* Mysidacea)

Mytilus edulis (*see* Mussel, bay (Pacific); Mussel, blue)

Myxosoma (*see* Myxosporidia)

Myxosporidia
J 30(11): 1713 (isolation & concentration of *Myxosoma cerebralis* spores from fish skeletal elements by trypsin digestion)

N

Nagasaki, Fukuzo
J 30(12,2):2361 (fluctuations in pelagic fish catches near Japan)

Naididae (*see also* Oligochaeta)
S 1845 (of NE USA)

Nakanishi, Masami
J 30(5): 708 (liquid scintillation vs. Geiger-Müller estimates of algal primary production in situ)

Narragansett Bay, Rhode Island
J 30(2): 181 (fatty acid composition of a polychaete & bivalve, re pollution)

Narver, David Wells
CNG 93 (hatcheries & spawning channels vs. stream protection for salmon & trout)

A 273 (effects of logging debris on production of stream salmonids)

Narwhal (*Monodon monoceros*)
J 30(8): 1111 (morphometry, distribution, NW Atl.)

Nasal organ
S 1733 (*Vibrio anguillarum* isolated from Atl. cod abcess of)

Nash, D. M.
S 1774 (metabolism of polychlorinated biphenyls isomers in rat, pigeon, & brook trout)

Nash, Frank William
T 355; 357; 359 (B.C. herring populations & spawning, 1950–51 to 1969–70)
358 (B.C. herring age composition, 1950–51 to 1969–70)
399 (computer programs for B.C. herring population analysis from catch, sampling, & spawn deposition data)
S 1834 (nutrient enrichment effect on algal photosynthesis, Great Central L., B.C.)

Naumov, A. G.
J 30(12,2): 2196 (utilization of krill & other resources from world ocean)

Neal, Richard Allan
J 30(12,2): 2218 (alternatives in aquaculture development)

Neal, Wanda Eloise
J 30(8): 1246 (comparisons of changes in amines & extractable protein in iced & frozen Atl. gadoid fillets)

Necrosis (*see* Viruses)

Needler, Alfred Walker Hollinshead
J 30(12,2): 2508 (chairman's summary of FAO Technical Conference on Fishery Management & Development, Vancouver, B.C., Feb. 13–23, 1973)

Nelson, Joseph Schieser
J 30(4): 557 (hybrids between longnose & white suckers)

Nematoda (*see also* Parasites)
J 30(2): 291 (*Contracaecum aduncum* in northern sand lance intestine)
(3): 443 (*Bulbodacnitis ampullastoma* effects on gut, feed consumption, & growth of young rainbow trout)
(7): 867(F) (seasonal settling of 27 species, St. Lawrence R. estuary)
S 1832 (of NE Pac. ocean perch)

Nemichthys scolopaceus (*see* Eel, slender snipe)

Nephroblastoma
J 30(4): 549 (spontaneous, in rainbow trout)

Nephtys incisa (*see* Polychaeta)

Nepszy, Stephen Joseph
J 30(12,1): 1909 (first record of Chinese mitten crab from N America)

Nervous system
S 1757; 1777 (goldfish cerebellum electrical responses)
1795 (fishes chemoreception & physiology)
1841 (chinook salmon)

Nessorhamphus ingolfianus (*see* Eel, duckbill oceanic)

Nest (*see* Spawning)

Nets (*see also* Gear, fishing; Trawls)
J 30(1): 128 (modified stakenet for collecting migrating Atl. salmon smolts)
(4): 587 (trapnet for large & small fishes from varying depths)
(6): 817 (direct estimates of gillnet selectivity of walleye)
(11): 1749 (portable wire-speed indicator for plankton nets)
CNG 95 (for collecting stream insects)
T 374 (electromagnetic jigger for locating gillnets under ice)

Neurohypophyseal hormones (*see* Hormones)

New Brunswick (*see also* Fundy, Bay of; Miramichi River; Northumberland Strait; St. Lawrence, Gulf of; *also* names of commercial fisheries)
B 184 (freshwater fishes of)

Newcombe, Charles Phillip
J 30(7): 995 (chemical signals in rainbow trout spawning behavior)
(12,1): 1789 (crawling & respiration rates as indices of sublethal effects of bunker C oil & a dispersant on a marine snail)

Newfoundland (*see also* Bonavista Bay; Grand Bank; Labrador; Placentia Bay; St. Lawrence, Gulf of; *also* names of commercial fisheries; *also* International Commission for the Northwest Atlantic Fisheries; Oceanography, northwest Atlantic coastal)
J 30(2): 249 (comparison of offshore fishing strategy with that of Cornish oyster fishery & B.C. inshore salmon fishery)
B 184 (freshwater fishes of)
CAR 2 (reprints of 28 FRB papers re marine pollution by elemental phosphorus in Placentia Bay)
CJG 19 (potentiality of sea urchin fishery)
20 (Gulf of St. Lawrence redfish fishery biological considerations)
T 339 (winter herring length, age, & weight)
353; 392 (commercial salmon catch, size & age composition)
365 (herring water content)

Nicholson, Bruce Lee

J 30(7): 913 (establishment of cultured cell line from various Atl. salmon parr tissues, and its susceptibility to 3 viruses)

Nicholson, Harold Frederick
T 351 (chlorophyll *a* distribution in lakes Ontario & Erie surface waters, 1970)

Nicholson, James William Gordon
S 1735 (milk, fishmeal, & soybean meal proteins as milk replacers in calf rations)

Nickel derivatives
J 30(7): 1014 (in organisms on Fraser R. mudflats, B.C.)
(8): 1240 (in Seattle harbor estuary sediments)

Nitrate (for general data re content in natural waters *see also* Nutrients, aquatic; *see also* Limnology; Oceanography; Production, primary)
J 30(10): 1415, 1501 (further results of eutrophication of a small lake by addition of)

Nitrilotriacetate (NTA) (detergent for replacing phosphate)
J 30(2): 323 (effect on bluegill & fathead minnow gill condition & survival)
(7): 1026 (discharge from 2 sewage treatment facilities, Winnipeg, Man.)

Nitrite (for general data re content in natural waters *see* Nutrients, aquatic; *see also* Limnology; Oceanography; Production, primary)

Nitrogen, dissolved as gas
J 30(9): 1392 (effect of supersaturation on salmon & eels in water passing through hydroelectric turbines)

Nitrogen compounds (*see also* Acids, amino; Acids, nucleic; Amines; Ammonia; Nitrate; Nitrilotriacetate; Nitrite; Nucleosides; Proteins; Pyrimidines; etc., *also* Composition, chemical; Nutrients, aquatic; *also* following heading)
J 30(1): 41(F) (soluble, of shore crab hepatopancreas during intermolt cycle & of ovary during ovogenesis)
(9): 1389 (total ammonia-N determination in fish tanks)
(12,I): 1825 (content of young butter clams fed 3 species of algae)

Nitrogen compounds as nutrient in waters (*see also* preceding heading, *also* Limnology; Oceanography headings; Production primary)
J 30(10): 1415, 1501 (added nitrate in small lakes)
T 370 (review of marine phytoplankton requirements)

Noble, Linda Diane
J 30(5): 711 (simple steam distillation technique for recovering petroleum hydrocarbons from tainted fish)

Nocomis biguttatus (*see* Chub, hornyhead)
micropogon (*see* Chub, river)

Nomenclature (*see also* Genera; Speciation; Systematics; Taxonomy)
B 180 (derivation of scientific name; synonomy of scientific & common names; French common name; of most B.C. marine fishes)
183 (Russian–English dictionary for students of fisheries & aquatic biology)
184 (derivation of scientific name; synonomy of scientific & common names; French common name; of most Canadian freshwater fishes)

Norris, David Otto
J 30(2): 201 (simulated meal size effect on secretory rates of gastric enzymes in bluegill)

Norris, James Scott
J 30(2): 201 (simulated meal size effect on secretory rates of gastric enzymes in bluegill)

Norstrom, Ross John
S 1774 (metabolism of polychlorinated biphenyls isomers in pigeon, rat, & brook trout)

Northumberland Strait, Gulf of St. Lawrence
J 30(12,I): 1819 (lobster larvae abundance, survival, vertical & diurnal distribution, 1962–63, re commercial stocks)

Northwest Territories, Canada (*see also* Arctic; Eskimo; Victoria Island)
B 184 (freshwater fishes of)
T 383 (experimental cropping of lakes: plans & simulation results)
384 (experimental cropping of lakes: physical & chemical features of the lakes)

Norway
A 292 (salmonid aquaculture)

Nose (*see* Nasal organ)

No-see-ums (*see* Ceratopogonidae)

Nota, Dirk Johannes Gregorius
B 182 (Gulf of St. Lawrence morphology & sediments)

Notemigonus crysoleucas (*see* Shiner, golden)

Notolepis rissoi (*see* Barracudina, white)

Notoscopelus caudispinosus (*see* 2nd entry under Lanternfishes)
krøyeri (*see* Lanternfish, Krøyer's)
resplendens (*see* Lampfish, patchwork)

Notropis anogenus (*see* Shiner, pugnose)
atherinoides (*see* Shiner, emerald)
bifrenatus (*see* Shiner, bridle)

blennius (see Shiner, river)
chrysocephalus (*see* Shiner, striped)
cornutus (*see* Shiner, common)
dorsalis (*see* Shiner, bigmouth)
emiliae (*see* Minnow, pugnose)
heterodon (*see* Shiner, blackchin)
heterolepis (*see* Shiner, blacknose)
hudsonius (*see* Shiner, spottail)
photogenis (*see* Shiner, silver)
rubellus (*see* Shiner, rosyface)
spilopterus (*see* Shiner, spotfin)
stramineus (*see* Shiner, sand)
umbratilis (*see* Shiner, redfin)
volucellus (*see* Shiner, mimic)
key to certain Canadian species, J 30 (9): 1379

Noturus flavus (*see* Stonecat)
gyrinus (*see* Madtom, tadpole)
miurus (*see* Madtom, brindled)

Nova Scotia (*see also* Bedford Basin; Cape Breton Island; Chedabucto Bay; Fundy, Bay of; Oceanography, northwest Atlantic coastal; St. Lawrence, Gulf of; St. Margaret's Bay; *also* names of commercial fisheries)
J 30(1): 113 (seasonal & local variations in rainbow smelt odd-chain fatty acid levels)
B 184 (freshwater fishes of)
T 402 (analysis of fish assemblages in waters of SW Scotian Shelf)
S 1779 (phytoplankton nutrients & flushing of inlets)

Nowak, S.
J 30(10): 1594 (recording avoidance movements of fish)

Nuclear power plant
J 30(8): 1195 (vulnerability & survival of 9 fish species to thermal effects of discharge)

Nucleic acids (*see* Acids, nucleic; Nucleosides)

Nucleosides; Nucleotides (*see also* Acids, amino; Acids, nucleic; Enzymes; Hypoxanthine)
J 30(1): 45 (metabolic changes in unfrozen & thawed sea scallop adductor muscle)
S 1731 (purification & properties of chum salmon testes deoxyribonuclease)
1763 (nucleotide levels in Pac. halibut stored in refrigerated sea water, in ice, & frozen)

Nucula proxima (*see* Clam, Atlantic nut)

Nursall, John Ralph
J 30(8): 1161 (behavioral interactions of spottail shiners, yellow perch, & northern pike)
T 304 (life history & distribution of Arctic lamprey in Great Slave L. region, N.W.T.)

Nutrients, aquatic (*see also* Aquaculture; Culture; Feed; Fertilization; Limnology; Nutrition; Oceanography; Productivity)
J 30(2): 215 (seasonal cycle of vitamin B_{12} re PO_4 & NO_2–NO_3 nitrogen, Strait of Georgia & Juan de Fuca Strait)
(10): 1415, 1501, 1547 (effects of added, on primary production & eutrophication, etc., of FRB Experimental Lakes Area lakes, NW Ont.)
T 370 (review of requirements for marine phytoplankton growth)
S 1779 (for phytoplankton, re flushing of N.S. inlets)
1799 (use of, for enrichment of sockeye salmon nursery lakes, B.C.)
1800 (stability of enriched aquatic ecosystems)
1834 (enrichment effect on algal photosynthesis, Great Central L., B.C.)
A 288 (deficiencies in polluted lakes)

Nutrition (*see also* Aquaculture; Bioenergetics; Caloric content; Culture; Composition, chemical; Diet; Feed; Feedstuffs; Nutrients, aquatic; Production, primary; Production, secondary; Ration; *also* Carbohydrate; Digestion; Fats and oils; Metabolism; Mineral constituents; Proteins; Quality of fishery products; Vitamins; etc.)
J 30(2): 296 (factors in biochemical pathology of coho salmon kidney corynebacterial disease)

O

Obituary
J 30(1): 111 (Wallace Allison MacCallum)
(9): 1361 (Ernest Hess)

Ocean (*see also* name of ocean; *also* Hydrography; Oceanography headings)
J 30(12,2): (*see* separate index in that issue on FAO Technical Conference on Fishery Management and Development (Vancouver, B.C., Feb. 13–23, 1973))
S 1781 (size distribution of particulate matter in)
1786 (distribution & activity of microorganisms in)
A 281 (biological resources of world: review of book on)

Ocean Station P (*see* Pacific Ocean; Oceanography, North Pacific)

Oceanography (In addition to the heading Ocean, and the following Oceanography headings, *see* Atlantic Ocean; Computer programming; Hudson Bay; Pacific Ocean; Scotian Shelf; *also* Currents; Estuary; Halocline; Hydrography; Inlets; Irradiation; Models, mathematical; Nutrients, aquatic; Pollution; Production, primary; Salinity; Sea level; Sea water; Sediments; Temperature; Thermocline; Tides; Transport, mass; Weather; Wind effects; *also* names of certain bays, channels, gulfs, inlets, straits, etc.; for effects on fishes and fisheries, *see* Fisheries and names of marine organisms)

Oceanography, general
J 30(1): 53 (mathematical derivation of balanced vs. geostrophic wind-stress on waters (of Hudson Bay))

(2): 293 (mercury concentration in the marine environment)
(2): 313 (submersible spectroradiometer & data acquisition system)
(2): 320(F) (objective analysis of seasonal thermocline)
T 380 (energy changes re wind mixing in upper ocean)
S 1754 (large-scale natural & pollution effects on marine population fluctuations in open ocean)
1815 (effect of dissolved salts on compressibility of sea water)
1858 (a time-dependent model of the upper ocean)

Oceanography, North Pacific (*see also* note to Oceanography heading; *also* Alaska, Gulf of)
CNG 94 (effects on fisheries of changing ocean environment)
T 375; 391 (Ekman transport computations & charts, 1971 & 1972, with notes on mean sea level & vorticity)
S 1857 (upper layer modification at Pac. Ocean Station P)

Oceanography, Northeast Pacific coastal (*see also* note to Oceanography heading; *also* Georgia, Strait of)
J 30(2): 215 (vitamin B_{12} seasonal cycle in Strait of Georgia, B.C.)
B 180: 6 (re B.C. marine fishes)
CNG 94 (effects on fisheries of changing ocean environment)
T 347 (source water for entrainment, Alberni Inlet, B.C.)
381 (changing physical factors re herring population sizes)
385 (benthic macroinvertebrates & solid pollutants survey, Howe Sound, B.C.)
395 (an unusually strong current in Hecate Strait, Sept. 1968)
396 (mercury levels in Howe Sound, B.C.)
S 1771; 1827; 1828 (some aspects of pulpmill effluent impact on Alberni Inlet)
A 280 (Strait of Georgia & Gulf of Alaska re Gulf of St. Lawrence)

Oceanography, Northwest Atlantic coastal (*see also* note to Oceanography heading; *also* Chedabucto Bay; Fundy, Bay of; Maine, Gulf of; Placentia Bay; St. Lawrence, Gulf of; St. Margaret's Bay)
J 30(1): 121 (winter surface currents around Cape Breton Is., N.S.)
(9): 1363 (re probable cause of *Gonyaulax tamarensis* red tide bloom in Gulf of Maine)
B 182 (Gulf of St. Lawrence)
T 404 (variability of water properties & circulation, St. Margaret's Bay, N.S.)
S 1779 (flushing of N.S. inlets re phytoplankton nutrients)
A 280 (Gulf of St. Lawrence re Gulf of Alaska & Strait of Georgia)

O'Connor, Joseph Francis
J 30(7): 1012 (brook trout homing, Matamek L., Que.)
(9): 1398 (American eel competition & predation effects on brook trout population in a Que. lake)

Octopine (arginine derivative)
J 30(1): 45 (changes in unfrozen & thawed sea scallop adductor muscle)

Octopus (*see* Cephalopoda)

Odense, Paul Holger
J 30(4): 549 (spontaneous nephroblastoma in a rainbow trout)
(10): 1583 (gross structure of adductor muscles of some pelecypods)
S 1805 (hematological & histological effects of elemental phosphorus on Atl. herring)

Odometer
T 362 (for measuring speed & distance of Irish moss rakes)

Odonata (dragonflies and damselflies)
CNG 95 (life cycle & guide to S Vancouver Is.)

Odontoceta (*see also* names of species)
S 1787 (possible role in echolocation of wax esters in head fat)
1824 (significance of accessory corpora lutea in)

Odor (*see also* Olfactory perception and response; Quality of fishery products)
T 363 (tests on stored frozen Pac. halibut after chilling vs. freezing at sea)

O'Halloran, Mary-Jane
S 1814 (cadmium-induced testicular injury & androgen synthesis alteration in brook trout)

O'Hara, James
J 30(6): 846 (cadmium uptake by fiddler crab re temperature & salinity stress)

Oil spills (*see* Oils, petroleum)

Oils, petroleum (re pollution)
J 30(1): 83 (bunker C oil effects on intertidal & lagoonal biota, Chedabucto Bay, N.S.)
(2): 261 (dispersed & particulate residues in Gulf of St. Lawrence)
(5): 711 (simple steam distillation technique for recovery from tainted fish)
(8): 1039 (detection of traces in sea water by fluorescence spectroscopy)
(11): 1611 (laboratory studies of accommodation in sea water)
(12,I): 1789 (crawling & respiration rates as index of sublethal effects of bunker C oil & a dispersant on a marine snail)
S 1751 (determination in aquatic animals)

Oils and fats (*see also* Acids, fatty; Blubber; Enzymes; Lipids; Liver oil)
J 30(6): 841 (molybdenum uptake in rainbow trout & kokanee fat)
(7): 1017 (liver changes in rainbow trout fed herring oil)
(12,I): 1880 (determination of fish fat content with a nontoxic, noninflammable solvent)
T 363 (peroxide content of oil from halibut variously refrigerated)
365 (Nfld. herring fat content re length, sex, spawning, season, water content, etc.)
S 1788 (fractional vacuum distillation of herring oil methyl esters)

Okanagan Lake, B.C.
J 30(4): 519 (crustacean plankton re eutrophication)
(7): 917 (thermal structure re several adjacent Okanagan Valley lakes, B.C.)

Okanagan Valley lakes, B.C. (Kalamalka, Okanagan, Osoyoos, Skaha, Wood)
J 30(4): 519; (7): 917 (eutrophication, thermal structure, crustacean plankton, bottom fauna, etc.)
T 342 (eutrophication, bottom fauna survey)

Olfactory perception and response
J 30(2): 279 (lobster response to attractant, in presence of pulpmill effluent)
(2): 283 (apparatus for stimulating olfactory activity in fishes)
(3): 363 (copper-induced lesions in mummichog & Atl. silverside olfactory organs)
(6): 775 (re chemical communication among lobsters)
(6): 838 (lobster orientation to odor)
(7): 995 (probable role in rainbow trout spawning behavior)
(8): 1243 (response of 3 catfish species to α-amino acids, re time after capture)
S 1795 (re chemoreception & physiology of fishes)
1856 (to amino acids by whitefish, rainbow & brook trout)

Oligochaeta (*see also* Annelida)
J 30(5): 617 (interspecific respiration interactions between *Tubifex tubifex*, *Limnodrilus hoffmeisteri*, & *Peloscolex multisetosus*)
T 342 (in survey of bottom fauna in certain Okanagan Valley lakes, B.C.)
387 (vegetable additives to stream gravel, as feed for)
S 1845 (biology, key, descriptions, bibliography, & index, of NE USA)

Oligosaccharides (*see* Glucans)

Oloffs, Peter Christian
J 30(11): 1619 (behavior of chlorinated hydrocarbons in natural waters & their sediments)

Olsen, Gayle Flohlich
J 30(5): 698 (short-term physiological indicators of copper effects on brook trout)

Olson, Kenneth Robert
J 30(9): 1293; (10): 1575 (methylmercuric chloride vs. mercuric chloride uptake rate by rainbow trout principally through gills)

Olson, Lee E.
J 30(8): 1047 (TFM lampricide toxicity to rainbow trout early life stages)

O'Malley, Henry
S 1839 (adult sockeye salmon migration in Puget Sound, Wash., & Fraser R., B.C. (as of 1919))

Ommastrophes bartamii (*see* Squid)

Onarheim, Thor
J 30(12,2): 2100 (structural problems & planning in fisheries development)

Oncorhynchus gorbuscha (*see* Salmon, pink)
keta (*see* Salmon, chum)
kisutch (*see* Salmon, coho)
nerka (*see* Salmon, sockeye; Kokanee)
tshawytscha (*see* Salmon, chinook)
see also Salmon (Pacific in general)

Onoue, Yoshio
J 30(11): 1745 (use of plastein reaction in recovering protein from fish waste)

Ontario (*see also* Fisheries Research Board of Canada Experimental Lakes Area; Great Lakes; Heart Lake; Hudson Bay; Ontario, Lake; Ottawa River)
J 30(6): 761 (diel habits of 21 species of lake fishes)
B 184 (freshwater fishes of)

Ontario, Lake (*see also* Great Lakes)
J 30(1): 131 (early record of sea lamprey from)
(12,I): 1771, 1779 (phytoplankton photosynthesis rates re light intensity)
T 351 (chlorophyll *a* distribution in surface waters, 1970)

Operculum
J 30(5): 693 (recording beats in fish, without implanted electrodes)

Ophichthus gomesi (*see* Eel, shrimp)
ocellatus (*see* Eel, palespotted)

Ophiodon elongatus (*see* Lingcod)

Orcinus orca (*see* Whale, killer) (actually a dolphin)

Organolepsis (*see* Light, reactions to; Olfactory perception and response; Salinity; Stress; Temperature; *also* following heading)

Organoleptic tests

J 30(1): 63, 71, 79 (re quality of Pac. halibut & chinook salmon after brine- vs. plate-freezing of the fish at sea)

Organs (*see also* names of various organs)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of various, in various inshore & offshore fishes, SE coast USA)

Orientation (*see also* Distribution; Homing; Migration; Organolepsis)
J 30(6): 725 (effects of temperature & copper ions on goldfish locomotor behavior)
(6): 838 (of lobster to odor)
S 1795 (re chemoreception of fishes)

Osmeridae (*see also* names of genera)
B 180: 136 (full description, etc., in B.C.)
B 184: 306 (full description, etc., in Canada)
T 368 (bibliography of over 1800 titles to smelt family, 1553–1972)

Osmerus (*see* preceding heading)
mordax (*see* Smelt, rainbow)

Osmoregulation (*see also* Salinity)
J 30(11): 1747 (some aspects of, in *Mysis stenolepis*)

Osoyoos Lake, B.C.
J 30(4): 519 (crustacean plankton re eutrophication)
(7): 917 (thermal structure re several adjacent lakes, Okanagan Valley, B.C.)

Ossiander, Frank James
J 30(9): 1383 (computer program for sample sizes to determine disease incidence in fish populations)

Osteology (*see* Bone)

Ostracoda
J 30(7): 867(F) (seasonal settling of 10 species, St. Lawrence R. estuary)
T 387 (vegetable additives to stream gravel, as feed for)

Ostrea edulis (*see* Oyster, European)
lurida (*see* Oyster, Pacific native)

Otoliths (for fish age determination) (*see also* Age)
J 30(2): 235 (re age determination & growth of Pac. ocean perch in NE Pac. Ocean)

Ottawa River, Ont. and Que.
J 30(2): 167 (abundance & diversity of Mollusca in industrialized portion near Ottawa & Hull)

Otter, sea (*see* Sea otter)

Otter trawl (*see* Trawls)

Outram, Donald Noel
T 356; 359 (B.C. herring spawners by millions, 1951–70)

Ovary (*see also* Eggs; Fecundity; Gonads; Hormones; Maturity; Reproduction; Spawning)
J 30(1): 41(F) (*Carcinus maenas* shore crab metabolism during ovogenesis)
(7): 905 (carp pituitary extract effect re temperature, on green sunfish)
S 1784 (adenyl cyclase activity in goldfish stimulated by gonadotropins)
1785 (salmon pituitary gonadotropin stimulation of ayu ovulation)
1824 (significance of accessory corpora lutea in white whale)
1825 (corpora lutea & corpora albicantia in Atl. sei whales)
1833 (chinook salmon gonadotropin stimulation of pink salmon ovulation)

Ovulation (*see* Eggs; Gonads; Hormones; Ovary; Maturity; Spawning)

Oxidases (*see* Enzymes)

Oxygen (*see also* Respiration *and* following heading)
J 30(9): 1317 (in sediments re primary production & organic matter input to aquatic ecosystems)
S 1742 (Kok effect in oxygen metabolism re light intensity, in *Chlamydomonas reinhardi* phytoflagellate)

Oxygen, dissolved (*see also* Blood; Carbon dioxide; Eutrophication; Gas-exchange; Limnology; Oceanography; Photosynthesis; Pollution; Production, primary; Respiration)
J 30(1): 105 (handling effects on American shad requirements)
(2): 223 (reduced ambient concentration effect on young Atl. salmon swimming performance in respirometer)
(2): 309 (vs. ^{14}C methods for measuring benthic microalgal primary production)
(6): 849 (reduced concentration effects on northern pike embryos & larvae)
(10): 1475 (& CO_2 gas-exchange rate in small lake)
(10): 1511 (re epilithiphyton production in a small lake)
(12,1): 1898 (consumption of postsmolt Atl. salmon, re reciprocal photoperiod regime)
S 1771; 1827; 1828 (re pulpmill effluent effects on, Alberni Inlet, B.C.)
A 273 (re logging debris effects on salmonid production in small streams)

Oxytocin
S 1842 (activity of, in spawning chinook salmon)

Oyster, American (*Crassostrea virginica*)
J 30(7): 991 (effects of brief temperature increase on larvae)
(10): 1583 (gross stucture of adductor muscle)
S 1852 (re Canadian culture)

Oyster, European (*Ostrea edulis*)

J 30(2): 249 (comparison of fishery strategy in Cornwall, Eng., with that of Nfld. offshore fishery & B.C. inshore salmon fishery)
S 1852 (re Canadian culture)

Oyster, Pacific (*Crassostrea gigas*)
J 30(7): 1014 (mercury & silver in, Fraser R. mudflats)
A 279 (aquaculture in B.C.)
282 (effects of pollution on, along B.C. shores)
283 (patented synthetic cultch ("Cultchettes") for collecting spat)

Oyster, Pacific native (*Ostrea lurida*) (Olympic oyster)
A 279; 282 (B.C. fishery)

P

Pacific Ocean (*see also* Ocean; Oceanography headings)
B 184: 9 (list of freshwater fishes in Canadian portion of NE drainage basin)
T 375; 391 (Ekman transport charts & computations for NE, 1971 & 1972, *also* notes on mean sea level & vorticity)
S 1781; 1829 (size distribution of particulate matter in north & south)
1811; 1829 (microzooplankton in coastal & oceanic areas in subarctic)
1812 (salmon utilization of herbivore zooplankton in northern N)
1813 (transfer of primary to secondary production at Pac. Ocean Station P)

Pacific Ocean Station P (*see* Oceanography, North Pacific; Pacific Ocean)

Packaging
B 184: 15 (instructions for forwarding fish specimens for identification)

Packard, Theodore T.
S 1786 (distribution & activity of microorganisms in ocean water)

Paedoclione (*see* Pteropoda)

Pagophilus groenlandicus (*see* Seal, harp)

Palatability (*see* Quality of fishery products)

Pancreas (*see also* Viruses)
J 30(1): 41(F) water, protein, & soluble nitrogen metabolism in shore crab intermolt cycle)
(9): 1383 (determining sample size from fish populations to detect infectious pancreatic necrosis)
S 1835 (pancreatic lipase mode of action)

Pandalidae (*see* Shrimps)

Paradis, Michel
S 1798 (isolation of a methyl-hexadecenoic acid from ocean sunfish lipids)

Paralichthys lethostigma (*see* Flounder, southern)

Paralytic shellfish poisoning
J 30(2): 143; (9): 1363 (growth & occurrence of causative organism, *Gonyaulax tamarensis*)

Paranjape, Madhu A.
T 401 (St. Margaret's Bay, N.S., zooplankton, 1968–71)

Parasites; Parasitization (*see also* Acanthocephala; Caligidae; Caligoida; Copepoda; Disease; Lamprey; Lernaeopodidae; Nematoda; Trematoda, etc.)
J 30(2): 291 (intestinal helminths of northern sand lance)
(3): 469 (polychaetes as intermediate hosts of helminth parasites of vertebrates)
(4): 565 (river lamprey on young Pac. salmons and herring)
(6): 729 (*Lepeophtheirus* (including a new species) from B.C. fishes)
(7): 881 (*Salmincola californiensis* life cycle & morphology in sockeye salmon)
(7): 947 (*Eubothrium salvelini* cestode effects on young sockeye)
(8): 1111 (of various odontocete Cetacea, NW Atl.)
(11): 1713 (*Myxosoma cerebralis* myxosporidian isolation from rainbow trout)
B 180 (of B.C. marine fishes)
184 (of Canadian freshwater fishes)
T 346 (instrumentation & mathematics of detection by ultrasonics in fish)
S 1782 (*Caligus chelifer* copepod on swordfish & Atl. cutlassfish)
1783 (*Impexus hamondi* copepod new genus & species, on Australian fishes)
A 293 (of finner whales by *Penella* copepod & lampreys)

Park, Tai Soo
J 30(10): 1597 (redescription of *Gaetanus intermedius* copepod from type locality)

Parker, Robert Ray
T 347 (source water for entrainment in Alberni Inlet, B.C.)
S 1771; 1827; 1828 (some facets of pulpmill effluent impact on Alberni Inlet)

Parophrys vetulus (*see* Sole, English)

Parr (*see* name of mature fish, e.g. Salmon; Trout)

Parsons, Leon Scott
T 339 (length, age, & weight of SW Nfld. winter herring, 1965–66 to 1970–71)
365 (fat & water content of Nfld. herring re spawning, length, sex, season, etc.)
S 1806; 1807 (effects of elemental phosphorus pollution on Atl. herring, Placentia Bay, Nfld.)

Parsons, Timothy Richard

J 30(7): 1014 (mercury & other metal derivatives in benthic animals on Fraser R. mudflats)
S 1799 (use of nutrients in enrichment of sockeye salmon nursery lakes, B.C.)
1800 (stability of enriched aquatic ecosystems)
1829 (size fractionation of subarctic Pac. Ocean primary producers)
A 290 (pollution problems in Strait of Georgia, B.C.)

Particulate matter (*see* Matter, particulate)

Patalas, Kazimierz
J 30(4): 519 (crustacean plankton re eutrophication of Okanagan Valley lakes, B.C.)

Pathology (*see also* Cytology; Disease; Histology; Infection; Parasites; Tumors; Viruses)
J 30(2): 296 (nutritional factors in biochemical, of coho salmon corynebacterial kidney disease)
(4): 549 (nephroblastoma in rainbow trout)
(4): 571 (of redmouth disease in rainbow trout)
(5): 681 (columnaris disease in white sucker)
S 1733 (*Vibrio* infection in Atl. cod nasal region)

Paulik, Gerald John
J 30(12,2): 1936 (objectives and problems of managing aquatic living resources)

Paulowich, S.
S 1815 (compressimeter for compressibility for seawater solutions)

Payne, Robert Law
J 30(12,2): 2321 (planning large-scale fisheries development, Indian Ocean)

PCB (*see* Polychlorinated biphenyls)

Peamouth (*Mylocheilus caurinus*) (peamouth chub)
B 184: 424 (full description, etc., in Canada)
T 390 (catches during experimental purse seining, Babine L., B.C., 1972)

Pearlsides, Müller's (*Maurolicus muelleri*)
J 30(1): 134 (lengths of 6 specimens taken in or off Gulf of Maine)

Pearson, Roger Eugene
J 30(8): 1226 (young smallmouth bass growth temperature requirements & lower lethal temperatures)

Pediastrum (*see* Photosynthesis)

Peer, Donald Lloyd
S 1792 (multivariant analysis for identifying benthos functional components)
1809 (mortalities of benthic organisms from elemental phosphorus pollution, Long Harbour of Placentia Bay, Nfld.)
1816 (effects of kraft mill effluent on marine benthos community, N.S.)

Pelecypoda (*see also* Clam; Clams; Cockle; Mollusca; Mussel; Oyster; Scallop)
J 30(2): 167 (abundance, of 22 species in an industrialized portion of Ottawa R.)
(10): 1583 (gross structure of adductor muscle in various)
T 342 (in bottom fauna survey of certain Okanagan Valley lakes, B.C.)

Peloscolex (*see* Oligochaeta)

Penaeus (*see* Shrimp (Central American))

Penella (*see* Copepoda)

Peng, Tsung-Hung
S 1773 (CO_2 role in maintaining phytoplankton standing crops)

Penhale, Polly Ann
J 30(8): 1179 (ninespine stickleback energy budget in an Alaskan arctic lake)

Penobscot River, Maine
J 30(4): 493 (macrobenthic ecology of sawdust-bearing substrate in estuary)

Pentachlorophenate (*see also* Polychlorinated biphenyls)
J 30(4): 499 (effects on young sockeye salmon growth, swimming, & feed metabolism)

Pepsin (*see also* Enzymes)
J 30(2): 201 (secretory rates in bluegill fed simulated (glass bead) meal sizes)

Perca flavescens (*see* Perch, yellow)

Perch, ocean (Atlantic) (*see* Redfish)

Perch, Pacific ocean (*Sebastes alutus*)
J 30(2): 235 (otolith age determination & growth, NE Pac. Ocean)
T 338 (B.C. landings 1961–71 & additional 1971 data)
345 (catches & fork lengths in experimental cruise off SW Vancouver Is.)
398 (1972 B.C. commercial fishery catch & effort statistics)
S 1832 (helminths of NE Pac.)

Perch, shiner (*Cymatogaster aggregata*)
B 184: 10 (observed in Canadian fresh or brackish waters)

Perch, silver (*Bairdiella chrysura*)
J 30(2): 275 (Cd, Cu, & Zn content of muscle, SE coast USA)

Perch, trout (*see* Trout-perch)

Perch, white (*Morone americana*)

J 30(8): 1195 (thermal effects of nuclear power plant effluent on)
B 184: 684 (full description, etc., in Canada)

Perch, yellow (*Perca flavescens*)
J 30(6): 761 (diel habits in Ont. lakes)
(8): 1141 (lens accommodative movements re feeding behavior)
(8): 1161 (behavioral interactions with spottail shiners & northern pike)
(8): 1253 (temperature selection by temperature-acclimated young & adult)
(9): 1395(F) (^{125}I metabolism re thyroid function)
(11): 1697 (temperatures selected seasonally in W L. Erie)
B 184: 755 (full description, etc., in Canada)

Percina caprodes (*see* Logperch)
copelandi (*see* Darter, channel)
maculata (*see* Darter, blackside)
shumardi (*see* Darter, river)

Percopsis omiscomaycus (*see* Trout-perch)

Peridineae
T 337 (of 35 lakes in FRB Experimental Lakes Area, NW Ont.)

Periwinkle, common (*Littorina littorea*)
J 30(9): 1385 (growth rate, as indicator of pollution)
(12,I): 1789 (crawling & respiration rates as indices of sublethal effects of bunker oil & a dispersant)
S 1751 (bunker C oil in N.S.)

Peroxide value
T 363 (of oil from flesh of halibut variously refrigerated)

Pessah, Edward
J 30(4): 485 (temperature effects on mercury accumulation, toxicity, & metabolic rate of young rainbow trout)

Pesticides (*see also* Fungicides; Herbicides; Hydrocarbons, halogenated; Insecticides; Lampricides; Pentachlorophenate; Pollution; Polychlorinated biphenyls; Toxicants)
J 30(1): 31 (endrin toxicosis physiology in rainbow trout)
(11): 1743 (endrin uptake & release by young channel catfish)
S 1844 (residues re quality of freshwater fishery products)
A 290 (pollution in Strait of Georgia, B.C.)

Peterson, Richard Harry
J 30(8): 1091 (effects of chlorinated hydrocarbons on Atl. salmon & brook trout temperature selection)
S 1757 (goldfish cerebellum electrical responses)
1777 (effects of cooling on electrical responses of goldfish nervous system)

Petroleum oils (*see* Oils, petroleum)

Petromyzon marinus (*see* Lamprey, sea)

Pettijohn, Lyle LeClaire
J 30(11): 1625 (isolation & identification of infectious hematopoietic necrosis fish virus in E North America)

pH
J 30(1): 71 (of Pac. halibut & chinook salmon flesh re quality after brine- vs. plate-freezing of the fish at sea)
(7): 1023 (activity relations of 2 lactate dehydrogenase homotetramers from steelhead trout liver)
S 1736 (lethal, for white suckers in waters subject to atmospheric SO_2 fallout)

Phaeodactylum tricornutum (*see* Diatoms)

Phaeophyta (*see also* Algae; Seaweeds)
J 30(1): 83 (mortality of *Fucus spiralis* from fuel oil spill, Chedabucto Bay, N.S.)

Phenol derivatives (*see* Pentachlorophenate; Polychlorinated biphenyls)

Phenotypes (*see also* Genetics)
J 30(7): 1031 (genic, of bluefin tuna tetrazolium oxidase)

Pheromones (*see* Hormones)

Phialidium gregarium (*see* Jellyfishes)

Philleo, William Wallace
S 1732 (gonadotropin preparation from chinook salmon pituitary glands)

Phoca hispida (*see* Seal, ringed)
vitulina (*see* Seal, Atlantic harbour)

Phocoena phocoena (*see* Porpoise, harbor)

Phosphatases (*see* Enzymes)

Phosphates (*see also* Eutrophication; Limnology; Nitrilotriacetate (detergent for replacing phosphate); Nucleosides; Nutrients, aquatic; Oceanography; Pollution)
J 30(1): 45 (hexose monophosphate accumulation & related metabolic changes in unfrozen & thawed sea scallop adductor muscle)
(2): 187 (genetics of glycerol-3-phosphate dehydrogenase isozymes in lake whitefish white muscle)
(5): 651 (young Atl. salmon reaction to fenitrothion organophosphate insecticide)
(5): 685 (sodium tripolyphosphate effect on thaw-drip & taste of fillets of some freshwater fishes)
(10): 1415 (further results of eutrophication of a small lake by addition of)
(10): 1525 ($^{32}PO_4$ addition to a small lake for tracing

movements of phosphorus between its biologically important forms)
(10): 1537 (adenosine triphosphate determination in lake water by firefly lantern extract)
A 275 (review of article on ecological effects of detergents)
288 (re cause & control of cultural eutrophication of lakes from detergents)
290 (pollution in Strait of Georgia, B.C.)

Phosphorus, elemental (yellow)
J 30(9): 1385 (mussel & periwinkle shell growth rate as indicator of pollution by, in Long Harbour, Placentia Bay, Nfld.)
CAR 2 (reprints of 28 papers re the 1969 pollution crisis, Placentia Bay: effects on marine life; bioassays; toxicology; analytical methods & results) (indexed in previous FRB indexes as published))
S 1805–1809 (effects on fishes & benthos in Placentia Bay)

Phosphorus compounds (*see also* Acids, nucleic; Nucleosides; Phosphates; for organophosphorus insecticides, *see* Insecticides)
S 1830 (content of duck feathers re geographical origin)

Photochemistry
S 1755 (photochemical degradation of chlorobiphenyls)

Photography
J 30(2): 173 (underwater from a submersible, re disturbance of sea scallop beds)

Photoinhibition
J 30(12,I): 1771 (re light intensity effect on phytoplankton photosynthesis rates)

Photoperiod (*see* Light, reactions to)

Photosynthesis (*see also* Phytoplankton)
J 30(9): 1317 (re fixed carbon respired at a sediment surface)
(10): 1447, 1469, 1501, 1511, 1539 (various aspects of, in FRB Experimental Lakes Area lakes, NW Ont.)
(12,I): 1771 (light intensity re photosynthetic rates of L. Ontario phytoplankton: *Cosmarium, Scenedesmus, Chlorella, Sorastrum, Melosira, & Asterionella*)
(12,I): 1779 (diel & annual cycles of L. Ontario phytoplankton photosynthesis: *Melosira, Asterionella, Tabellaria, Fragilaria, Pediastrum, Ceratium, & Staurastrum*)
T 370 (review of effect of light on & energy efficiency of phytoplanktonic primary production)
376 (computer programming for calculating integral primary production)
S 1742 (Kok effect in *Chlamydomonas* alga)
1793 (re productivity & energy flow, R. Thames, Eng.)
1827; 1828 (effects of pulpmill effluent on, Alberni Inlet, B.C.)
1817 (theory & criticism of use of ^{14}C to measure)
1834 (nutrient enrichment effect on algal, Great Central L., B.C.)

Phoxinus eos (*see* Dace, northern redbelly)
neogaeus (*see* Dace, finescale)

Phthalate
T 344 (plasticizers: determination, toxicity, & environmental levels)

Physiology (*see also* the various aspects of)
J 30(1): 31 (of endrin pesticide toxicology in rainbow trout)
(6): 831 (of sublethal heat stress in young steelhead trout & coho salmon)
(7): 1023 (of pH activity of 2 lactate dehydrogenase homotetramers from steelhead trout livers)
(12,I): 1771 (phytoplankton photosynthesis re light intensity)
S 1795 (chemoreception of fishes)

Phytanic acid
S 1747 (re geochemistry)

Phytoflagellates (*see also Gonyaulax*)
S 1742 (Kok effect re oxygen exchange and evolution vs. light intensity, in *Chlamydomonas reinhardi*)
1743 (amperometric measurement of hydrogen evolution in *C. moewusii*)

Phytol
S 1747 (re geochemistry)
1772 (stereochemistry re that of pristane)

Phytoplankton (*see also* Algae (and subclassifications of); Biomass; Biosynthesis; Chlorophylls; Diatoms; Feed; Grazing; Limnology; Nutrients, aquatic; Oceanography; Photosynthesis; Plankton; Productivity, primary)
J 30(10): 1409, 1415, 1447, 1469, 1501, 1511, 1537, 1547 (various aspects of production re natural & added nutrients, also eutrophication, in FRB Experimental Lakes Area lakes, NW Ont.)
(10): 1415 (standing crops & species composition in an artificially enriched small lake)
(12,I): 1771 (photosynthesis rates in L. Ontario, re light intensity)
(12,I): 1779 (photosynthesis rates in L. Ontario re diel & seasonal light intensity)
T 337 (species composition & seasonal distribution of communities in FRB Experimental Lakes Area, NW Ont.)
351 (re chlorophyll *a* distribution in surface waters of lakes Ontario & Erie, 1970)
370 (review of some current problems in productivity of marine)
376 (computer programming integral photosynthesis)

S 1773 (role of atmospheric CO_2 in maintaining standing crops)
1779 (nutrients & flushing of N.S. inlets)
1786 (biomass estimates & respiration rate in NW Atl. Ocean)
1793 (re productivity & energy flow, R. Thames, Eng.)
1818 (improved techniques for preserving, for electron microscopy)
1829 (size fractionation in subarctic Pac. Ocean)

Pickerel, chain (*Esox niger*)
B 184: 370 (full description, etc., in Canada)

Pickerel, grass (*Esox americanus vermiculatus*)
B 184: 352 (full description, etc., in Canada)

Pickerel, redfin (*Esox americanus americanus*)
B 184: 348 (full description, etc., in Canada)

Pienaar, Leon Visser
T 367 (3 computer programs for population dynamics)

Pigeon
S 1774 (metabolism of polychlorinated biphenyl isomers in)

Pigeon Lake, Alta.
J 30(11): 1683 (divergent growth in lake whitefish populations)

Pigments; Pigmentation (*see also* Chlorophylls; Color; Skin)
J 30(3): 460 (algal: simple apparatus for spot elution in thin-layer chromatography)
A 292 (use of shrimp in trout aquaculture feed to enhance pink color in flesh)

Pike, northern (*Esox lucius*)
J 30(2): 317 (appearance of prey & predatory satiation of, re feed selection)
(5): 685 (Na tripolyphosphate effect on thaw-drip & taste of fillets)
(6): 849 (effects of reduced oxygen concentrations on embryos & larvae)
(8): 1161 (behavioral interactions with spottail shiners & yellow perch)
B 184: 356 (full description, etc., in Canada)
S 1836 (clearance rate of methylmercury from various tissues)

Pillay, Thundathil Velayudhan Ramakrishna
J 30(12,2):2202 (aquaculture in fishery development & management)

Pilot plant
T 343; 366 (clarification of fish processing wastewater by chemical treatment & air flotation)

Pimephales notatus (*see* Minnow, bluntnose)
promelas (*see* Minnow, fathead)

Pincock, Douglas George
J 30(9): 1402 (pressure-sensing ultrasonic transmitter for tracking aquatic animals)

Pinkut Creek, B.C. (*see* Babine Lake, B.C.)

Pinnipedia (*see* Sea lion; Seal)

Pintail (*see* Ducks)

Pippy, John Herbert Charles
S 1806; 1807 (effects of elemental phosphorus pollution in Atl. herring, Placentia Bay, Nfld.)

Pisaster ochraceous (*see* Starfish, ochre)

Piscicides (*see* Lampricide)

Pisidium (*see* Clams (freshwater))

Pitt, Thomas Kenton
J 30(9): 1261 (areal, seasonal, & calorific variations in American plaice feed, Grand Bank, Nfld.)

Pituitary
J 30(7): 905 (effects of extract from carp, on responses of green sunfish ovaries re temperature)
S 1732 (preparation of gonadotropin from chinook salmon glands)
1784 (chinook salmon & carp gonadotropin stimulation of goldfish ovary adenyl cyclase activity)
1785 (chinook salmon gonadotropin stimulation of ayu ovulation)
1841 (isolation & amino-acid sequence of chinook salmon neurohypophyseal hormones)
1842 (oxytocic activity, in spawning chinook salmon)

Pivnick, Hilliard
J 30(11): 1760 (inability to detect *Clostridium botulinum* spores in fish protein concentrate)

Placentia Bay, Nfld.
J 30(9): 1385 (mussel & periwinkle shell growth as indicator of elemental phosphorus pollution)
CAR 2 (reprints of 28 FRB papers re marine pollution by elemental phosphorus)
S 1805; 1806; 1807; 1809 (elemental phosphorus effects on marine life)
1808 (elemental phosphorus as probable cause of moribund herring)

Placopecten magellanicus (*see* Scallop, sea)

Plagioporus (*see* Trematoda)

Plaice, American (*Hippoglossoides platessoides*)
J 30(9): 1261 (areal, seasonal, & calorific variations of feed components, Grand Bank, Nfld.)
(11): 1717 (analysis of energy flow & production of unexploited population)
T 361 (alimentary tract morphology re feed habits)

402 (re fish assemblages)

Plankton (*see also* Phytoplankton; Zooplankton)
J 30(11): 1749 (portable wire-speed indicator for nets)

Plant, pilot (*see* Pilot plant)

Plant, power (*see* Nuclear power plant)

Planting (*see* Stocking)

Plants *see* Flora; Seaweeds)

Plasma (*see also* Blood)
J 30(8): 1131 (binding of triiodothyronine & thyroxine to brook trout plasma proteins)
S 1760 (testosterone & its glucuronide in thorny skate testicular & peripheral blood)
1768 (corticosteroids in lungfish blood)

Plastein reaction (*see* Proteins)

Plasticizers (*see* Phthalate)

Platichthys stellatus (*see* Flounder, starry)

Platidia hornii (brachiopod)
S 1759 (description; first B.C. record)

Platt, Trevor Charles
T 370 (review of some current problems in marine phytoplankton productivity)
S 1779 (phytoplankton nutrients & flushing of N.S. inlets)

Platygobio gracilis (*see* Chub, flathead)

Platyhelminthes (*see* Cestoda; Trematoda; Turbellaria)

Plecoglossus altivelis (*see* Ayu)

Plecoptera (stoneflies)
CNG 95 (life cycle & guide to, S Vancouver Is.)
T 387 (vegetable additives to stream gravel, as feed for)
S 1764 (description & keys to 119 Montana species)

Pleurobrachia pileus (*see* Jellyfishes)

Plumage (*see* Birds; Ducks; Feathers)

Plumb, John Alfred
J 30(4): 568 (temperature effect on mortality of virus-infected channel catfish)

Podocotyle (*see* Trematoda)

Poecilia latipinna (*see* Molly, sailfin)
reticulata (*see* Guppy)

Poeciliopsis (topminnows)
J 30(11): 1736 (karyotypes & erythrocyte sizes of diploid & triploid: *P. lucida* & *P. monacha* & their complexes)

Point Grey, B.C.
T 393 (sediment preference of blackbelly eelpout, also list of 37 species taken in experimental trawling off)

Poisons (*see* Paralytic shellfish poisoning; Pesticides; Toxicity; *also* names of toxic chemical elements)

Polar, Samuel Myer
J 30(1): 119 (hydrophone & bow-mount for tracking fish by ultrasonic telemetry)
T 341 (actograph for recording locomotor activity of laterally or ventrally compressed aquatic organisms of medium size)
362 (odometer for measuring speed & distance of Irish moss rakes)

Pollachius virens (*see* Pollock)

Pollock (*Pollachius virens*)
J 30(8): 1205 (formaldehyde formation from trimethylamine oxide in, & its effect on salt-extractable muscle proteins & denaturation of frozen fillets therefrom)
(8): 1246 (trimethylamine, dimethylamine, & extractable protein changes in iced & frozen fillets)

Pollution; Pollutants (Because of the large number of articles on these subjects, in addition to the following references, certain aspects are also indexed for convenience under separate headings such as: Debris; Ecology; Eutrophication; Fish processing wastes; Hydrocarbons, halogenated; Logging; Mercury and derivatives; Mine wastes; Oils, petroleum; Pesticides (*also* types listed in that heading); Phosphates; Phosphorus, elemental; Polychlorinated biphenyls; Pulpmill effluents; Sediments; Sewage; Toxicants; etc. In addition to Mercury and Mine wastes above, *see also* names of other toxic chemical elements, particularly Copper; Lead; Zinc)
J 30(2): 167 (slaughterhouse, etc., effluents re Mollusca & aquatic flora in Ottawa R. near Ottawa, Ont., & Hull, Que.)
(2): 181 (effect on fatty acid composition of a polychaete & bivalve, Narragansett Bay, R.I.)
(2): 275 (re As, Cd, Cu, Hg, & Zn content of muscle & some organs of 33 species of inshore & offshore fishes, SE coast USA)
(4): 493 (macrobenthic ecology of a sawdust-bearing substrate in a river estuary)
(4): 576 (mathematical theory of optimum control applied to a dynamic aquatic ecosystem)
(8): 1240 (effects of dredged polluted sediments on threespine sticklebacks & coho salmon, Seattle, Wash.)
CNG 93 (re stream protection for Pac. salmon & trout spawning)
T 341 (actograph for recording locomotory reactions of aquatic organisms to)

342 (re eutrophication of Okanagan Valley lakes, B.C.)
344 (phthalate plasticizers as environmental pollutant)
347 (re water entrainment in Alberni Inlet, B.C.)
385 (various types of solid benthic, near shores of Howe Sound, B.C.)
S 1736 (lethality of water pH to white suckers)
1748 (synopsis of FRB research activities)
1754 (effects of, on large-scale fluctuations in open ocean populations)
1853 (groundwater)
A 282 (effects on marine life of B.C. shores)
290 (problems in Strait of Georgia, B.C.)

Polychaeta
J 30(2): 161 (bloodworm, *Glycera dibranchiata*, reproduction)
(2): 181 (*Nephtys incisa* fatty acid composition)
(3): 469 (as intermediate hosts of helminth parasites of vertebrates)
(4): 493 (re ecology of sawdust-bearing substrate in a river estuary)
(7): 867(F) (seasonal settling of 6 species, particularly *Polydora ciliata*, in St. Lawrence R. estuary)
S 1792 (re benthos functional components, St. Margaret's Bay, N.S.)

Polychlorinated biphenyls (PCB) (*see also* Pentachlorophenate)
J 30(3): 471 (residues in Bay of Fundy & Gulf of Maine harbour seals)
(5): 595 (residue levels in Gulf of St. Lawrence harp seals re age)
(5): 702 (cooking effects on residues in L. Michigan chinook & coho salmon flesh)
(8): 1053 (in Canadian Atl. coast harp seal tissues)
(8): 1091 (effects on Atl. salmon & brook trout temperature selection)
(11): 1619 (behavior in natural waters & their sediments)
S 1755 (photochemical degradation of)
1774 (metabolic behavior of pure isomers in pigeons, rats, & brook trout)

Polydora (*see* Polychaeta)

Polyipnus asteroides (a mesopelagic sternoptychid fish; no common name as yet)
J 30(1): 134 (length of a specimen taken in or off Gulf of Maine)

Polymorphism (for polymorphism of organs, *see* Morphology; *also* names of organisms)
J 30(7): 1031 (genic, of tetrazolium oxidase from bluefin tuna)

Polysaccharides (see Glycogen; Starch)

Pomatomus saltatrix (*see* Bluefish)

Pomeroy, Lawrence Richards
S 1786 (distribution & activity of microorganisms in ocean water)

Pomoxis annularis (*see* Crappie, white)
nigromaculatus (*see* Crappie, black)

Pond; Ponding (*see also* Aquaculture)
T 377 (lobster condition & survival in tide pond re feeding, cover, & stock density)
382 (rainbow trout planting in prairie potholes)
388 (sablefish culture)

Pope, Gregory Fredrik
J 30(10): 1586 (postglacial colonization of Matamek R., Que., by fishes)

Popiel, Josef
J 30(12,2): 2254 (influence of industrial fisheries on catches for human food)

Popper, Frederick Emanuel
J 30(12,2): 1926 (preface to proceedings of FAO Technical Conference on Fisheries Management and Development, Vancouver, B.C., Feb. 13-23, 1973)
(12,2): 1931 (keynote address to FAO Technical Conference on Fisheries Management and Development, Vancouver, B.C., Feb. 13-23, 1973)

Populations; Population dynamics (*see also* Abundance; Association; Exploitation; Stock)
J 30(2): 195 (ratio of nucleic acids as measure of long-term growth, in fish)
(3): 409 (linear regressions in data from fisheries research)
(5): 607 (age & growth of white sucker, re size range at maturity)
(5): 695 (simple methods of estimating mortality rates of exploited fish)
(7): 939 (delay-differential equation models for biomass of fisheries)
(7): 998 (simple dynamic pool vs. surplus production models for fishery yield)
(7): 1033 (estimating stream populations of premigrant brook trout, Matamek L., Que.)
(8): 1215 (life history of 2 isolated Arctic char populations, in spring-fed Canning R., Alaska)
(9): 1383 (computing sample sizes from fish populations to determine disease incidence)
(11): 1629 (Beverton-Holt model of commercial fishery: optimal dynamics)
(11): 1667 (changes in L. Winnipeg whitefish, 1944–69)
(11): 1683 (divergent growth of lake whitefish in 2 Alta. lakes)
(11): 1717 (analysis of energy flow & production in an unexploited flatfish population)
B 181 (population dynamics of ringed seal, E Canadian arctic)
T 355; 356; 357 (of B.C. herring, 1950–51 to 1969–70)

367 (3 computer programs for population dynamics)
370 (diurnal rhythms, physiological structure, & age, of marine phytoplanktonic)
381 (physical factors in B.C. coast waters re changes in herring)
399 (analysis of B.C. herring, computer programs)
S 1754 (natural & pollution effects on large-scale fluctuations in populations of open ocean organisms)
1790 (age structure & distribution, of green sea urchin)
1826 (NW Atl. fin whale)
A 294 (management of ringed seal, for Eskimo utilization)

Porifera
T 385 (benthic, near shoreline of Howe Sound, B.C., re pollution)

Porpoise, harbor (*Phocoena phocoena*)
J 30(8): 1111 (distribution, pigmentation, reproduction, morphometry, feed, parasites, dentition, NW Atl.)

Porteous, David Malcolm
T 403 (computer programs for processing data of suspended material collected by Coulter Counter)

Potassium derivatives
J 30(1): 71 (concentration variance in Pac. halibut & chinook salmon flesh after brine- vs. plate-freezing the fish at sea)
S 1744 (flux rate of K ions from lake sediments into lake waters)
1830 (content of duck feathers re geographical origin)

Pothole lakes (*see* Lakes)

Poulet, Serge André
T 403 (computer programs for processing data of suspended material collected by Coulter Counter)

Poultry
S 1734 (dogfish meals as supplements to rations)

Power, Geoffrey
J 30(2): 299 (round whitefish age, growth, & maturity, Leaf R., Ungava, Que.)
(7): 1012 (brook trout homing, Matamek L., Que.)
(7): 1033 (estimating stream populations of premigrant brook trout)
(9): 1398 (American eel competition & predation effects on brook trout population in a Que. lake)
(10): 1586 (postglacial colonization of Matamek R., Que., by fishes)

Power, Henry Edwin
J 30(1): 111 (obituary of Wallace Allison MacCallum)
S 1735 (milk, fishmeal, & soybean meal proteins as milk replacers in calf rations)

Power plant (electrical) (*see* Nuclear power plant)

Prakash, Anand
J 30(2): 143 (growth & cell-size distribution of cultured marine planktonic algae)
S 1781 (particulate matter size distribution in N & S Atl. & Pac.)

Predation (*see also* Feed; Parasites)
J 30(1): 17 (re NW Atl. harp seal feeding habits & ecological efficiency)
(2): 317 (appearance of prey & predatory satiation effect on northern pike feed selection)
(5): 601 (sea lamprey preferences re freshwater fish species & size)
(6): 787 (risk of epibenthic prey to predation by rainbow trout (mathematical model for))
(7): 965 (thermal shock effect on young rainbow trout & chinook salmon vulnerability to)
(8): 1161 (by yellow perch, spottail shiners, & northern pike)
(9): 1261 (areal & seasonal variations in American plaice feeding)
(9): 1398 (American eel on brook trout in a Que. lake)
CJG 19 (on & by sea urchin, Canadian Atl.)
T 400 (on & by sea urchin, B.C.)
S 1790 (on & by sea urchin, St. Margaret's Bay, N.S.)

Prediction (*see* Forecasting)

Preservatives; Preservative treatments (*see also* Quality of fishery products; *also* Canning; Freezing; Ice; Irradiation; Refrigeration; Smoking; etc.)
J 30(2): 305 (extending shelf life of mackerel in India)
B 184: 15 (for preparing & forwarding freshwater fish specimens for identification)
S 1753 (for Chaoboridae insect specimens)
1818 (improved technique for microalgae re electron microscopy)

Pressure, hydrostatic
J 30(9): 1349 (effects on *Homarus gammarus* lobster larval development)
(9): 1402 (ultrasonic transmitter for sensing swimming depth of aquatic animals)

Priacanthus arenatus (*see* Bigeye)

Prieston, Richard
T 389 (interrelationships among individuals in a fish school)

Primary productivity (*see* Productivity, primary)

Prince, Edward Ernest
S 1840 (Canadian shad fishery & its restoration (as of 1912))

Prince Edward Island (*see also* Northumberland Strait; St. Lawrence, Gulf of)
B 184 (freshwater fishes of)

Pristane (*see also* Hydrocarbons)
S 1772 (stereochemistry re that of phytol)

Pristanic acid
S 1747 (re geochemistry)

Pritchard, G. Ian
S 1852 (fish & shellfish farm projects in Canada)

Procerodes (*see* Turbellaria)

Processing of fishery products (for topics, *see* Fish processing, *also* types of processing)

Production (*see also* Catches; Fisheries; names of organisms; *also* following 3 headings)
J 30(11): 1717 (analysis in unexploited marine flatfish population)

Productivity (*see also* Fecundity; *also* following two headings)
J 30(1): 17 (re NW Atl. harp seal feeding habits & growth)
(3): 333 (annual, of *Sagitta elegans* chaetognath, Bedford Basin, N.S.)
(7): 939 (delay-differential equation models for fishery)
(7): 998 (simple dynamic pool vs. surplus production models re fishery yield)
(9): 1275 (mechanisms thwarting maintenance of peak-period yields from stocks of Pac. salmons & other fishes)
T 370 (global, of marine microphytes)
S 1793 (at all trophic levels, R. Thames, Eng.)
A 273 (effects of logging debris on salmonid production in streams)
281 (review of book on biological resources of the world ocean)

Productivity, primary (*see also* Algae; Biomass; Biosynthesis; Carbon (in biochemical processes); Matter, particulate; Photosynthesis; Phytoplankton; Plankton; *also* preceding and following headings)
J 30(2): 309 (^{14}C vs. dissolved oxygen methods for measuring benthic microalgal)
(5): 708 (liquid scintillation vs. Geiger–Müller estimates of primary rates, using ^{14}C in situ experiments)
(6): 835 (in situ ^{14}C measurement of, in arctic sea ice algae)
(9): 1317 (coupling carbon flow through some pelagic & benthic communities)
(10): 1415, 1447, 1469, 1501, 1511, 1547 (various aspects of, in FRB Experimental Lakes Area lakes, NW Ont.)
T 370 (review of some current problems in marine phytoplankton productivity)
376 (computer programming for calculating integral, re irradiance)
S 1771 (re pulpmill effluent effects on, Alberni Inlet, B.C.)
1793 (R. Thames, Eng.)
1811; 1813 (transfer to secondary production in N Pac. feed web)
1829 (size fractionation of primary producers, subarctic Pac.)

Productivity, secondary (*see also* Feed; Grazing; Zooplankton; *also* the 2 preceding headings)
S 1811 (microzooplankton in coastal & oceanic Pac. subarctic water mass)
1812 (herbivore zooplankton utilization by maturing Pac. salmon)
1813 (transfer of primary production to, at N Pac. Ocean Station P)

Prokopowich, James Ernest
J 30(10): 1415 (further results of PO_4 & NO_3 enrichment on eutrophication of a lake in the FRB Experimental Lakes Area, NW Ont.)

Prosopium coulteri (*see* Whitefish, pygmy)
cylindraceum (*see* Whitefish, round)
williamsoni (*see* Whitefish, mountain)

Prosser, Clifford Ladd
S 1777 (effects of cooling on electrical responses of goldfish nervous system)

Protection (*see* Conservation; Exploitation; Management; Species, endangered)

Proteins (*see also* Acids, amino; Composition, chemical; Drip; Fish protein concentrate; Muscle)
J 30(1): 41(F) (of *Carcinus maenas* shore crab hepatopancreas during molting cycle & ovary during ovogenesis)
(2): 157 (effect of season on Atl. cod muscle protein salt-extractability & stability during frozen storage)
(5): 706 (electrophoresis of fish myofibrillar, with a polyacrylamide gel)
(8): 1131 (binding of triiodothyronine & thyroxine to brook trout blood plasma proteins)
(8): 1205 (formaldehyde formation in gadoid fishes re salt-extractable proteins of muscle & denaturation of frozen fillets therefrom)
(8): 1246 (changes in extractable, in Atl. gadoid iced & frozen fillets)
(11): 1745 (use of plastein reaction in recovering protein from fish wastes)
(12,1): 1867 (salinity influence on protein requirements of rainbow trout fingerlings)
S 1734 (evaluation of dogfish meal as poultry ration supplement)
1735 (of milk, fishmeals, & soybean meal, as milk replacers in calf rations)

Protozoa (*see* Foraminifera; Myxosporidia; Phytoflagellates)

Proude, Peter Desmond
J 30(12,2): 2190 (methods of small-scale fisheries development)

Prouse, Nicholas J.
J 30(11): 1611 (accommodation of some fuel oils in sea water)

Pruter, Alonzo Theodore
J 30(12,2):2373 (bottomfish resources in Bering Sea)

Pseudomonas (*see also* Bacteria)
S 1819; 1849 (an unusual pyrimidine, & polyamines, from a bacteriophage of *P. acidovorans*)

Pseudopleuronectes americanus (*see* Flounder, winter)

Pteropoda
T 401 (of St. Margaret's Bay, N.S., zooplankton, 1968-71)
S 1791 (*Clione limacina* feeding on *Spiratella*, & growth)
1831 (*Paedoclione doliiformis* & *C. limacina* reproduction & development)

Ptychocheilus oregonensis (*see* Squawfish, northern)

Publication
S 1756 (re dissemination of research results)

Publications (*see* Bibliographies; *also* next heading)

Publications, Fisheries Research Board of Canada (*see also* information at beginning of this index)
R 1971-1972: 160 (types of; lists of 1971-72 publications & reports)
B 164 (French translation of preface to Bulletin 164 (index & lists of 1900-64 publications; preface gives history & nature of the various series)
MSP 18 (index & lists of 1965-72 publications & reports)

Puget Sound, Washington
J 30(7): 1003 (young pink & chum salmon feed preferences)
S 1839 (adult sockeye salmon migration to Fraser R. (as of 1919))

Pulpmill effluents (*see also* Pollution)
J 30(2): 167 (re Mollusca & aquatic flora in Ottawa R. near Ottawa, Ont., & Hull, Que.)
(2): 279 (lobster response to attractant odor solution in presence of)
(3): 369 (sublethal effects of bleached kraft, on sockeye salmon respiration & circulation)
(3): 395 (effect of long exposure to, on juvenile coho salmon blood & tissues)
(4): 479 (identification of resinic & unsaturated fatty acids toxic to young coho salmon)
(10): 1565 (neutralized bleached kraft: bioassay procedure for acute toxicity to young Pac. salmon)
T 347 (re source water for entrainment of, Alberni Inlet, B.C.)
385 (benthic solids near shores of Howe Sound, B.C.)
S 1771; 1827; 1828 (some aspects of impact on Alberni Inlet, B.C.)
1816 (effects on marine benthic community in a N.S. harbor)
1854 (fish toxicity survey from 4 Canadian prairie plants)
A 282 (re pollution of B.C. coastal shorelines)
290 (pollution in Strait of Georgia, B.C.)

Pumpkinseed (*Lepomis gibbosus*) (pumpkinseed sunfish)
J 30(6): 761 (diel habits in Ont. lakes)
(6): 853 (role of woody debris in nest site selection)
(12,1): 1901 (re hybridization of sunfishes)
B 184: 713 (full description, etc., in Canada)

Pungitius pungitius (*see* Stickleback, ninespine)

Purines (*see* Acids, nucleic; Hypoxanthine; Nucleosides; Pyrimidine)

Pusa (*see Phoca*)

Putrescine
S 1819 (*N*-thyminylputrescine, an unusual pyrimidine from a bacteriophage deoxyribonucleic acid)
1849 (re polyamines of *Pseudomonas acidovorans* bacteriophage)

Pyrimidine
S 1819 (an unusual, from a bacteriophage deoxyribonucleic acid)

Pyrrophyta (*see* Algae; Cryptophyta; *Gonyaulax*)

Q

Qadri, Sami Ullah
J 30(2): 167 (abundance & diversity of Mollusca in an industrialized portion of Ottawa R.)

Quahog, northern (*Venus mercenaria*) (*Mercenaria mercenaria*)
J 30(10): 1583 (adductor muscle gross structure)

Quahog, ocean (*Arctica islandica*)
J 30(10): 1583 (adductor muscle gross structure)

Quality of fishery products
J 30(1): 63, 71, 79 (organoleptic and other criteria tests re brine- vs. plate-freezing of Pac. halibut & chinook salmon at sea)
(2): 269 (sterilization of pelleted fish feeds)
(2): 305 (extending shelf life of iced Indian mackerel by irradiation)
(5): 685 (Na tripolyphosphate effect on thaw-drip & taste of fillets from various freshwater fishes)
(5): 702 (cooking effects on residues of chlorinated hydrocarbons in L. Michigan chinook & coho salmon flesh)
(8): 1235 (smoking & canning rainbow trout to mask or neutralize muddy flavor)

T 363 (frozen Pac. halibut after freezing vs. chilling at sea)
S 1765 (processing effects on texture & acceptability of smoked goldeye)
1821 (canned sockeye salmon, from fish stored partially frozen)
1822 (canned sockeye salmon, from fish stored in ice vs. refrigerated sea water)
1844 (specific problems in freshwater fish quality assessment)
1847 (new technical research on frozen fish)
A 264 (effect of delayed chilling of salmon during transportation to cannery)
292 (use of shrimp in trout aquaculture feed to enhance pink color of flesh)

Quay, Paul Douglas
J 30(10): 1491 (vertical eddy diffusion in thermocline of a small stratified lake)

Quayle, Daniel Branch
A 282 (environmental pollution effects on marine life of B.C. shores)
283 (patented synthetic oyster cultch ("Cultchettes"))

Quebec (*see also* Hudson Bay; Ottawa River; St. Lawrence River; Ungava; *also* names of commercial fisheries)
B 184 (freshwater fishes of)

Queen Elizabeth Islands, Canadian arctic (*see* Char Lake)

Quillback (*Carpiodes cyprinus*)
B 184: 528 (full description, etc., in Canada)

Quimby, Millicent Childs
J 30(11): 1625 (isolation & identification of infectious hematopoietic necrosis fish virus in E North America)

Quinn, James Gerard
J 30(2): 181 (pollution effect on fatty acid composition of a polychaete & bivalve, Narragansett Bay, R.I.)

R

Rabbit
S 1758 (testicular tissue malic enzymes)

Radiation (*see* Irradiation; Light, reactions to)

Radioisotopes (*see* Isotopes; Radiometer; *also* names of elements)

Radiometer; Radiometry
J 30(2): 313 (submersible spectroradiometer for measuring & recording irradiance vs. wavelength)
(5): 708 (comparison of liquid scintillation & Geiger–Müller estimates of primary production rates in situ)

Radium (*see also* Radon)
J 30(10): 1475 (in a small lake in FRB Experimental Lakes Area, NW Ont.)
(10): 1485 (uptake of introduced ^{226}Ra by benthic algae in a lake)

Radon (*see also* Radium)
J 30(10): 1475 (natural ^{222}Rn in a lake re determination of gas-exchange rates)
(10): 1485 (^{222}Rn from introduced ^{226}Ra for tracing distribution & uptake of ^{226}Ra by benthic algae & sediments in a lake)
(10): 1491 (^{222}Rn from introduced ^{226}Ra for study of vertical eddy diffusion in thermocline of small stratified lake)

Raft culture
A 279 (of Pacific oyster)

Raja eglanteria (*see* Skate, clearnose)
erinacea (*see* Skate, little)
laevis (*see* Skate, barndoor)
ocellata (*see* Skate, winter)
radiata (*see* Skate, thorny)
richardsoni (*see Bathyraja*)

Rakes (*see* Irish moss)

Ramey, Charles Wilfred
T 381 (physical factors in B.C. coast waters re herring population sizes)

Randall, David John
J 30(1): 99 (gill irrigation re pressure, in rainbow trout)

Range (*see also* Distribution; Species, new records or range extensions of)
B 180 (of B.C. marine & anadromous fishes (325 species): along B.C. coast, also extent of range north & south of B.C., if occurring)
184 (Canadian freshwater fishes (181 species): within Canada; also range within USA if occurring; and for some species, map of world distribution)
S 1830 (geographical origin of ducks re chemical composition of feathers)

Rastrelliger kanagurta (*see* Mackerel, Indian)

Rat
S 1774 (metabolism of polychlorinated biphenyl isomers in)

Ration (*see also* Culture; Diet; Feed; Feedstuffs; Metabolism)
J 30(2): 296 (re nutritional factors in biochemical pathology of coho salmon corynebacterial kidney disease)
S 1734 (dogfish meals as supplement to poultry rations)
1735 (milk, fishmeal, & soybean meal as protein sources in milk replacers for dairy calves)

Raven, sea (*Hemitripterus americanus*)
T 361 (alimentary tract morphology re feed habits)

Ray, cownose (*Rhinoptera bonasus*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle & some organs, SE coast USA)

Razzell, Wilfred Edwin
J 30(5): 631 (*Clostridium botulinum* control in cold-smoked salmon (review))

Reactions (animal) (*see* Avoidance; Behavior; Currents, reactions to; Environment; Light, reactions to; Olfactory perception and response; Pollution; Salinity; Sound, reactions to; Temperature; etc.)

Read, Leslie Arthur Allen
J 30(8): 1253 (temperature selection by temperature-acclimated yellow perch)

Recognition (*see* Identification; Keys; Vision)

Records, new (*see* Species, new; Species, new records or range extensions of)

Records, size (*see also* Size)
B 180 (maximum, of most of 325 species of B.C. marine fishes)
184 (maximum, of most of 181 species of Canadian freshwater fishes)

Recruitment (*see also* Mortality; Populations; Stocks)
J 30(9): 1275 (re mechanisms thwarting maintenance of peak-period yields from stocks of Pac. salmons & other fishes)

Red tide (*see Gonyaulax*)

Reddy, Barbara Helen
S 1823 (arginine & arginine dihydrolase re *Aeromonas salmonicida* catabolism)

Redfish (*Sebastes marinus*) (Atlantic ocean perch)
J 30(1): 17 (role in NW Atl. harp seal feed)
(8): 1205 (lack of dimethylamine or formaldehyde formation in, re salt-extractable protein formation in muscle)
CJG 20 (past, present, & future biological considerations of Gulf of St. Lawrence fishery)
T 402 (re fish assemblages)

Redfish, deepwater (*Sebastes mentella*)
J 30(11): 1655 (first record of *Ichthyocodium sarcotretis* hydroid on *Sphyrion lumpi* parasitic copepod of, re speciation of NW Atl. redfishes, e.g. *Sebastes fasciatus*)

Redhorse, black (*Moxostoma duquesnei*)
B 184: 571 (full description, etc., in Canada)

Redhorse, copper (*Moxostoma hubbsi*)
B 184: 577 (full description, etc., in Canada)

Redhorse, golden (*Moxostoma erythrurum*)
B 184: 574 (full description, etc., in Canada)

Redhorse, greater (*Moxostoma valenciennesi*)
B 184: 584 (full description, etc., in Canada)

Redhorse, river (*Moxostoma carinatum*)
B 184: 567 (full description, etc., in Canada)

Redhorse, shorthead (*Moxostoma macrolepidotum*)
J 30(5): 601 (size re predation by sea lamprey)
B 184: 579 (full description, etc., in Canada)

Redhorse, silver (*Moxostoma anisurum*)
B 184: 564 (full description, etc., in Canada)

Redhorses (*see also* preceding names of species)
B 184: 23 (schematic diagrams of Canadian redhorse & sucker species)

Redmouth disease (*see* Disease)

Reduction (*see also* Fish processing wastes)
T 338; 398 (B.C. fish landings for, 1961–71; 1972)

References (*see* Bibliographies)

Refrigerated sea water (*see* Sea water, refrigerated)

Refrigeration (*see also* Freezing; Ice; Quality of fishery products; Sea water, refrigerated; Thawing)
J 30(1): 63, 71, 79 (effects on Pac. halibut & chinook salmon flesh quality after brine- vs. plate-freezing the fish at sea)
(2): 157 (effect on stability of Atl. cod salt-extractable muscle protein)
(2): 305 (extending shelf life of iced Indian mackerel by irradiation)
(8): 1246 (trimethylamine, dimethylamine, & extractable protein changes in iced & frozen Atl. gadoid fillets)
T 363 (keeping quality of frozen halibut re prefreezing storage)
S 1821; 1822 (effect on quality of canned sockeye salmon from fish stored in ice, refrigerated sea water, or partially frozen)
1847 (new technical research on frozen fish)
A 264 (principles of, as applied to fish chilling)
284 (of fish afloat & ashore in Central American fishing industry (in Spanish & English))
285 (of shrimp on Central American shrimp trawlers (in Spanish & English))
287 (of tuna on Central American seiners (in Spanish & English))

Regeneration
J 30(10): 1601 (of limbs in lobster, re accelerated molting)
S 1775 (of scales & their silvery layers in Atl. salmon)

Regier, Henry Abraham

J 30(6): 817 (direct estimates of gillnet selectivity to walleye)
(12,2): 1992 (exploitation of stocks in multispecies fisheries in the Laurentian Great Lakes)

Regier, Lloyd Wesley
J 30(9): 1404 (addendum to article in J 29(12): 1777 on mercury removal from fish protein concentrate)
(11): 1760 (inability to detect *Clostridium botulinum* spores in fish protein concentrate)

Regression (*see also* Mathematical treatment of data)
J 30(3): 409 (linear regressions in fishery research)

Rehabilitation (*see* Conservation; Management; Species, endangered)

Reid, Ronald Allan
J 30(10): 1415 (further results of PO_4 & NO_3 enrichment on eutrophication of a lake in FRB Experimental Lakes Area, NW Ont.)

Reproduction (*see also* Eggs; Fecundity; Gonads; Hormones; Maturity; Ovary; Spawning; Testes)
J 30(2): 161 (of bloodworm, in a Maine estuary)
(4): 551 (*Aglantha digitalis* trachymedusa breeding cycle, NE Pac. Ocean)
(8): 1065 (white whale, W Hudson Bay)
(8): 1147 (effect of lime-neutralized iron hydroxide suspensions on fathead minnow)
B 181 (ringed seal in E Canadian arctic)
S 1739 (horse clam in S B.C.)
1825 (sei whales, NW Atl.)
1826 (fin whales, NW Atl.)
1831 (*Paedoclione doliiformis* & *Clione limacina* pteropods)

Research (general)
J 30(12,2): (many papers in that special issue on proceedings of FAO Technical Conference on Fishery Management and Development (Vancouver, B.C., Feb. 13–23, 1973); *see* separate index in that issue)
S 1748 (marine science: a challenge to chemists)
1749 (marine science & technology in Canada)
1756 (fishery research & management)
A 289 (biological considerations of Canadian coastal zone fisheries)

Resolute Bay, Cornwallis Island, Canadian arctic
J 30(6): 717 (Char L. Project Laboratory study of Arctic char respiration)

Resources, fishery (*see also* Abundance; Exploitation; Fisheries; Management; Populations)
J 30(12,2): (many papers in that special issue on proceedings of FAO Technical Conference on Fishery Management & Development; *see* separate index in that issue)
S 1748; 1749 (re marine science)
1756 (fishery research & management)
A 281 (review of book on biological resources of the world ocean)

Respiration (*see also* Activity; Blood; Gills; Metabolism; Oxygen, dissolved; Stress)
J 30(1): 99 (gill irrigation re pressure, in rainbow trout)
(1): 105 (handling effects on American shad oxygen requirements)
(2): 223 (reduced ambient oxygen concentration effect on young Atl. salmon swimming performance in respirometer)
(3): 333 (oxygen & caloric consumption of *Sagitta elegans* chaetognath)
(3): 369 (sublethal effects of bleached pulpmill effluent on sockeye salmon)
(5): 617 (interspecific interactions in, between tubificid oligochaete species)
(6): 717 (of Arctic char in a Canadian high-arctic lake)
(9): 1367 (adult sea lamprey oxygen consumption re body weight & temperature)
(11): 1705 (activity of trout & carp during recovery from anesthesia & surgery)
(12,1): 1789 (respiration rate as index of oil & dispersant effect on an intertidal snail)
(12,1): 1799 (re sockeye salmon energy expenditure during sustained swimming)
S 1786 (rate estimates of microorganisms in NW Atl. biomass)
1790 (green sea urchin)

Respirometer
J 30(1): 99; (2): 223; (3): 369; (11): 1705 (*see* these references under preceding heading)

Retina (*see* Eye; Vision)

Review papers and articles (*see also* R 1971–1972 reference under heading Fisheries Research Board of Canada for biennial review of its activities)
J 30(5): 631 (*Clostridium botulinum* control in cold-smoked salmon)
(12,2): (many papers in that issue on proceedings of FAO Technical Conference on Fishery Management and Development (Vancouver, B.C., Feb. 13–23, 1973); *see* separate index in that issue)
T 370 (some current problems in marine phytoplankton productivity)
S 1748 (FRB chemical & biochemical research activities)
1795 (chemoreception re fish physiology)

Reviews of books
A 274 (microbial biogeochemistry)
275 (phosphate detergents re ecological pollution (review of an article))
276 (systematics, etc. of rockfishes)
281 (biological resources of the world ocean)
286 (fundamentals of ecology)
296 (the blue whale)

Rheotaxis (*see* Homing; Migration; Spawning; Swimming)

Rheotropy (*see* Homing; Migration; Spawning; Swimming)

Rhinichthys atratulus (*see* Dace, blacknose)
cataractae (*see* Dace, longnose)
falcatus (*see* Dace, leopard)
osculus (*see* Dace, speckled)

Rhinobatos lentiginosus (*see* Guitarfish, Atlantic)

Rhinoptera bonasus (*see* Ray, cownose)

Rhodophyta
S 1750; 1820 (chemical & physical studies of glucans from *Rhodymenia pertusa*)

Rhodymenia pertusa (*see* Rhodophyta)

Rich, Willis
S 1839 (adult sockeye salmon migration in Puget Sound, Wash., & Fraser R., B.C. (as of 1919))

Richards, James Frederick
J 30(1): 63, 71, 79 (effects of brine- & plate-freezing at sea on Pac. halibut & chinook salmon quality)

Richardsonius balteatus (*see* Shiner, redside)

Ricker, William Edwin
J 30(3): 409 (linear regressions in fisheries research)
(9): 1275 (mechanisms thwarting maintenance of peak-period yields from stocks of Pac. salmon & other fishes)
(12,2): 2530 (index to organisms discussed in proceedings of FAO Technical Conference on Fishery Management & Development)
B 183 (Russian–English dictionary for students of fisheries & aquatic biology)
S 1756 (fishery research & management)
1764 (Montana stoneflies)
A 281 (review of book on biological resources of the world ocean)

Riddle, Victor Maxwell
J 30(11): 1745 (use of plastein reaction in recovering protein from fish waste)

Rigby, Dawn Victoria
J 30(5): 685 (Na tripolyphosphate effect on thaw-drip & taste of fillets from various freshwater fishes)

Rigor (*see also* Drip; Freezing)
J 30(5): 685 (effect on thaw-drip & taste of freshwater fish fillets treated with Na tripolyphosphate)

Ritter, John Albert
J 30(11): 1740 (influence of environmental experience on response of young rainbow trout to black & white substrates)
(12,1): 1875 (illumination effects on behavior of brown & rainbow trout exposed to black & white backgrounds)

River discharge (*see* Currents; Flow)

Roach (*Rutilus rutilus*)
S 1793 (re productivity & energy flow, R. Thames, Eng.)

Roach, Stewart Williard
T 363 (frozen Pac. halibut keeping quality re prefreezing storage)
S 1821; 1822 (quality of sockeye salmon canned after chilled or partially frozen storage of fish)
A 264 (operating instructions for refrigerated seawater systems on B.C. salmon packers)
284 (portable fish chilling unit for Central American artesanal fisheries (in Spanish & English))
285 (shrimp preservation on Central American trawlers (in Spanish & English))
287 (brine-spray freezing system for Central American small tuna seiners (in Spanish & English))

Robins, Geoffrey Lewis
J 30(1): 1 (starvation & subsequent feeding effects on sockeye salmon fry survival & growth)

Robinson, Michael Arthur
J 30(12,2): 2042 (fishery management economics)
(12,2): 2051 (demand for fish determinants, effects on resources)

Robison, Bruce Hammond
J 30(1): 126 (small globular aquarium for maintaining midwater fishes in captivity)

Rockfish, darkblotched (*Sebastes crameri*)
T 345 (catches during FRB experimental cruise, SW Vancouver Is., Sept. 1972)

Rockfish, dusky (*Sebastes ciliatus*)
J 30(8): 1230 (systematics, morphometry, distribution, & abundance)

Rockfish, rougheye (*Sebastes aleutianus*)
T 345 (catches during FRB experimental cruise, SW Vancouver Is., Sept. 1972)

Rockfishes
T 345 (catches of various, during FRB experimental cruise off SW Vancouver Is., Sept. 1972)
A 276 (review of book on systematics, etc.)

Roe (*see also* Eggs)
CJG 19 (commercial utilization of sea urchin gonads, Canadian Atl.)
T 400 (commercial utilization of sea urchin gonads, B.C.)

Rojo, Alfonso
J 30(12,1): 1888 (southern record of slender eelblenny in N.S. waters)

Rommel, Sentiel Albert, Jr.
J 30(5): 657 (sensitivity of American eel & Atl. salmon to weak electric & magnetic fields, re oceanic electric fields as migration guides)
(5): 693 (recording heart & operculum beats in fish without implanted electrodes)
(10): 1581 (apparatus for simulating motion of animals through geomagnetic field)

Ronald, Keith
J 30(8): 1053 (DDT & its metabolite residues in Canadian Atl. harp seals)

Roos, John Francis
J 30(4): 565 (river lamprey parasitism on young Pac. salmons & herring)

Ross, Avron John
J 30(2): 296 (nutritional factors in biochemical pathology of coho salmon corynebacterial kidney disease)
(7): 994 (*Scolecobasidium humicola* fungal pathogen of coho salmon)

Rothschild, Brian James
J 30(12,2): 2017 (strategy questions re fishery management, development)

Royce, William Francis
J 30(12,2): 2386 (salmon management in USA)

Royer, Leroy Merne
J 30(5): 643 (mercury uptake by caged rainbow trout, S Saskatchewan R.)

RSW (*see* Sea water, refrigerated)

Rucker, Robert Raymond
J 30(12,1): 1890 (chinook salmon open-jaw syndrome at a hatchery)

Rudd, John William McCullagh
J 30(7): 1026 (nitrilotriacetate discharge from 2 sewage treatment facilities, Winnipeg, Man.)
(10): 1537 (adenosine triphosphate concentrations in particulate material of 2 lakes in FRB Experimental Lakes Area, NW Ont.)

Ruggles, Charles Paul
J 30(6): 779 (recent Atl. salmon stock composition changes, Miramichi R., N.B.)

Ruminants (*see also* Cattle)
S 1767 (branched monomethyl fatty acids in sheep fat)

Russian language
B 183 (Russian-English dictionary for students of fisheries & aquatic biology)

Rutilus rutilus (*see* Roach)

Rybicki, Ronald Wayne
J 30(11): 1667 (changes in L. Winnipeg whitefish population, 1944–69)

Ryder, Richard Armitage
J 30(12,2): 2000 (assessing fishery potentials of lakes and reservoirs)

Rystad, Britt
J 30(2): 143 (growth & cell-size distribution of cultured marine planktonic algae)

S

Saanich Inlet, B.C.
J 30(4): 551 (*Aglantha digitale* trachymedusa diel migration & breeding cycle)

Sablefish (*Anoplopoma fimbria*) (blackcod)
T 338 (B.C. landings 1961–71 & additional 1971 data)
345 (catches during FRB experimental cruise off SW Vancouver Is.)
373 (tagging of young, NE Vancouver Is., 1972)
388 (experimental culture results, 1972; mercury levels in, when fed dogfish)
398 (1972 B.C. commercial fishery catches & effort statistics)

Sabussowia wilhelmii (new species) (*see* Turbellaria)

Saccharides (*see* headings listed under Carbohydrates)

Saddler, James Bryan
J 30(11): 1661 (statistical approach to coho salmon fatty acid content changes produced by diet)

Saetersdal, Gunnar Selmer
J 30(12,2): 2010 (assessment of unexploited resources)

Sæther, Ole Anton
J 30(5): 665 (taxonomy & ecology of 3 *Monodiamesa* chironomid new species, with keys to species)
T 342 (survey of bottom fauna of certain Okanagan Valley lakes, B.C.)
S 1753 (morphology, biology, ecology, & key to Chaoboridae)

Safe, Lorna Margaret
S 1798 (isolation of a methyl-hexadecenoic acid from ocean sunfish lipids)

Safe, Stephen H.
S 1755 (chlorobiphenyls photochemical degradation)
1774 (polychlorinated biphenyls isomers metabolism in rat, pigeon, & brook trout)
1798 (isolation of a methyl-hexadecenoic acid from ocean sunfish lipids)

Sagitta (*see* Chaetognatha)

Saint (*see* St.)

Salinity (The numerous data for salinity of sea waters routine observations are not indexed unless having special significance. *See also* Oceanography, *also* next heading)
T 404 (effects on circulation of waters, St. Margaret's Bay, N.S.)

Salinity, reactions to
J 30(6): 846 (stress effect on fiddler crab cadmium uptake)
(8): 1105 (jellyfishes behavior in discontinuity layers)
(11): 1747 (some aspects of osmoregulation in *Mysis stenolepis*)
(12,I): 1867 (influence on rainbow trout protein requirements)
S 1855 (effects of reduction of, re lobster gaffkemia infection)

Salki, Alex
J 30(4): 519 (crustacean plankton re eutrophication of Okanagan Valley lakes, B.C.)

Salmincola (*see* Lernaeopodidae)

Salmo clarki (*see* Trout, cutthroat)
gairdneri (*see* Trout, rainbow; Trout, steelhead)
gairdnerii irideus (*see* Trout, coast rainbow)
salar (*see* Salmon, Atlantic)
trutta (*see* Trout, brown)

Salmon (Pacific in general) (In addition to the publications referred to under following Salmon headings for the five species (chinook, chum, coho, pink, and sockeye) sometimes a publication refers to all five species in general, or does not mention which species was under investigation. Such references are collected under this heading. *See also* Kokanee; Salmonidae)
J 30(2): 249 (B.C. inshore fishing strategy re that of Cornish oyster fishery & Nfld. offshore fishing)
(4): 565 (parasitism on young, by river lamprey)
(5): 631 (*Clostridium botulinum* control in cold-smoked (review))
(9): 1275 (mechanisms thwarting maintainence of peak-period yields from stocks)
B 184: 146 (full descriptions, etc., as Canadian lacustrine (*see also* B 180: 106 for B.C. anadromous)
CNG 93 (hatcheries & spawning channels vs. stream protection)
T 343; 366 (clarification of cannery wastewater)
S 1812 (utilization of herbivore zooplankton by maturing, NE Pac. Ocean)
A 264 (operating instructions for refrigerated seawater systems on B.C. fish packer boats)
273 (effects of logging debris on stream production)

Salmon, Atlantic (*Salmo salar*)
J 30(1): 128 (modified stakenet for collecting migrating smolts)
(2): 223 (swimming performance of young in respirometer, as affected by reduced ambient oxygen concentration)
(3): 467 (blood hematocrit & hemoglobin changes from furunculosis disease)
(5): 651 (behavior of young when exposed to or force-fed fenitrothion, an organophosphate insecticide)
(5): 657; (10): 1581 (sensitivity to weak electric & magnetic fields)
(5): 693 (recording heart & operculum beats without implanted electrodes)
(6): 779 (recent changes in stock composition & reproductive potential, Miramichi R., N.B.)
(7): 913 (establishment of fibroblast-like cell line cultured from various tissues of parr, & its susceptibility to 3 viruses)
(7): 985 (chemical basis for homing of wild and hatchery-reared to hatchery vs. nearby hydroelectric dam)
(8): 1091 (chlorinated hydrocarbons effect on temperature selection)
(9): 1392 (effect of nitrogen supersaturation in water passing through hydroelectric turbines)
(10): 1586 (re postglacial colonization of Matamek R., Que.)
(12,I): 1898 (reciprocal photoperiod regime effect on oxygen consumption standard rate)
B 184: 192 (full description, etc., in Canada)
T 344 (dibutyl phthalate toxicity to young)
353; 392 (size & age composition of commercial Nfld. & Labrador catch)
361 (alimentary tract morphology re feed habits)
S 1775; 1776 (properties of silvery layers of scales & skin)
A 292 (aquaculture in Norway)
295 (ultrasonic tracking of)

Salmon, chinook (*Oncorhynchus tshawytscha*) (spring salmon) (*see also* Salmon (Pacific in general))
J 30(1): 63, 71, 79 (effects of brine- vs. plate-freezing at sea on quality)
(5): 702 (cooking effects on polychlorinated biphenyls & DDT compounds residues in flesh of L. Michigan)
(7): 965 (thermal shock effect on vulnerability of young to predation)
(8): 1099 (testosterone derivative for promoting weight increase in young)
(8): 1249 (yolk-sac malformation in hybrid with pink salmon, in hatchery)
(12,I): 1890 (open-jaw syndrome at a hatchery)
B 184: 172 (full description, etc., in Canada as lacustrine (*see also* B 180: 124 as B.C. anadromous))
1770; 1833 (gonadotropin stimulation of pink salmon sexual maturity)
S 1732 (gonadotropin preparation from pituitary glands)
1784 (gonadotropin stimulation of goldfish ovary adenyl cyclase)
1785 (gonadotropin stimulation of ayu ovulation)
1841 (isolation & amino acid sequence of neurohypophyseal hormones)
1842 (changes in hypophysis oxytocic activity during sexual maturation)

Salmon, Christian
S 1784 (gonadotropins activities on goldfish ovary adenyl cyclase)

Salmon, chum (*Oncorhynchus keta*) *see also* Salmon (Pacific in general))
J 30(7): 1003 (feed preferences of young, Puget Sound, Wash.)
(8): 1249 (yolk-sac malformation under certain hatchery conditions)
B 184: 153 (full description, etc., in Canada as lacustrine (*see also* B 180: 112 for B.C. anadromous))
S 1731 (purification & properties of deoxyribonuclease from testes)

Salmon, coho (*Oncorhynchus kisutch*) (*see also* Salmon (Pacific in general))
J 30(2): 296 (nutritional factors in biochemical pathology of corynebacterial kidney disease)
(3): 395 (kraft pulpmill effluent effect on blood & tissues of juvenile)
(4): 479 (identification of resinic & fatty acids constituents of kraft pulping effluent toxic to young)
(5): 623 (re evaluating method for estimating feed consumption rates)
(5): 702 (cooking effects on polychlorinated biphenyls & DDT compounds residues in flesh of L. Michigan)
(6): 831 (physiological aspects of sublethal heat stress in young)
(7): 994 (infection by *Scolecobasidium humicola* fungus)
(8): 1099 (testosterone derivative for promoting weight increase in young)
(8): 1240 (resistance to pollutants in sediments dredged from an estuary)
(10): 1565 (bleached kraft mill effluent acute toxicity evaluation for young)
(11): 1661 (fatty acid content – statistical approach to changes produced by diet)
B 184: 158 (full description, etc., in Canada as lacustrine (*see also* B 180: 115 for B.C. anadromous))
CNG 94 (effects of changing oceanic environment on mean annual weight)
T 390 (catches in experimental purse seining, Babine L., B.C., 1972)

Salmon, kokanee (*see* Kokanee)

Salmon, landlocked (*see* Kokanee)

Salmon, pink (*Oncorhynchus gorbuscha*) (*see also* Salmon (Pacific in general))
J 30(7): 1003 (feed preferences of young, Puget Sound, Wash.)
(8): 1249 (& hybrid with chinook salmon: yolk-sac malformation in hatchery)
(9): 1309 (tracking Fraser R. mature coastal movements ultrasonically)
(10): 1565 (bleached kraft mill effluent acute toxicity evaluation)
B 184: 148 (full description, etc., in Canada as lacustrine (*see also* B 180: 108 for B.C. anadromous))
T 364; 405 (evaluation of gravel incubators for fry & at adult stage, Tsolum R., B.C.)
371 (mean length &/or weight in B.C. catches & escapements in recent years)
S 1770; 1833 (induction of precocious sexual maturity in)

Salmon, sockeye (*Oncorhynchus nerka*) (*see also* Salmon (Pacific in general); *also* Kokanee)
J 30(1): 1 (starvation & subsequent feeding effects on fry survival & growth)
(3): 369 (sublethal effects of bleached kraft pulpmill effluent on respiration & circulation)
(3): 379 (metabolic rates & critical swimming speed re size & temperature: 10-yr review)
(4): 499 (pentachlorophenate effects on growth, feed conversion efficiency, & swimming performance of underyearling)
(7): 881 (life cycle & morphology of *Salmincola californiensis* parasite in)
(7): 947 (*Eubothrium salvelini* cestode infection effects on young, Babine L., B.C.)
(8): 1191 (temperature & feeding regime effect on fry growth rate & size)
(8): 1249 (yolk-sac malformation under certain hatchery conditions)
(9): 1275 (mechanisms thwarting maintenance of peak-period yields from stocks)
(10): 1565 (bleached kraft pulpmill acute toxicity evaluation for young)
(12,1): 1799 (bioenergetics during sustained swimming performance)
B 184: 165 (full description, etc., in Canada as lacustrine (*see also* B 180: 118 for B.C. anadromous))
T 348; 372 (fry trapping & marking, Babine L.)
389 (interrelation behavior of individuals when schooling in large tank)
390 (purse seine catches, Babine L., 1972)
S 1761 (corticosteroid dynamics in normal & orchidectomized mature males)
1799; 1800 (nutrients for enrichment of nursery lakes, B.C.)
1802 (sources of infection by *Plagioporus shawi* trematode)
1821 (freezing rate influence on quality of canned, after partially frozen storage of fish)
1822 (quality of canned, after fish storage in ice vs. refrigerated sea water)
1839 (adult migration, Puget Sound, Wash., to Fraser R., B.C. (as of 1919))

Salmon, spring or tyee (*see* Salmon, chinook)

Salmon, steelhead (*see* Trout, rainbow; Trout, steelhead)

Salmonidae (*see also* names of genera and common names of species)

J 30(10): 1578 (first record of bacterial kidney disease in apparently wild species in B.C. (rainbow trout))
(11): 1713 (isolation & concentration of *Myxosoma cerebralis* spores causing whirling disease in)
B 180: 106 (introduction to full descriptions of B.C. marine)
184: 138 (introduction to full descriptions of Canadian freshwater)
T 387 (addition of vegetable materials to stream substrates to enhance zoobenthic feed for)
A 273 (logging debris effects on stream production)
292 (aquaculture in Norway)

Salt (sodium chloride)
B 184: 15 (for preserving freshwater fish specimens for identification)

Salt-marsh cord grass (*Spartina alterniflora*)
J 30(1): 83 (mortality from fuel oil spill, Chedabucto Bay, N.S.)

Salts, sea
S 1815 (effects on sea water compressibility)

Salvelinus alpinus (*see* Char, Arctic)
fontinalis (*see* Trout, brook; Splake)
malma (*see* Dolly Varden)
namaycush (*see* Trout, lake; Splake)

Samemoto, Douglas Daniel
J 30(3): 333 (*Sagitta elegans* chaetognath annual life cycle & production)
T 350 (high-frequency sonar mapping of Gulf of St. Lawrence euphausiid concentrations)

Sammons, James Ira, III
J 30(7): 1031 (genic polymorphism of tetrazolium oxidase in bluefin tuna from France & NW Atl.)

Sampling
J 30(2): 287 (improved Ekman-type grab for freshwater macrobenthos)
(3): 409 (linear regressions in data)
(4): 587 (trapnet for large & small fishes from varying depths)
(8): 1251 (edible swordfish muscle for total mercury analysis)
(9): 1383 (computer program for sizes, to determine disease incidence in fish)
B 182 (Gulf of St. Lawrence sediments)
T 399 (re computer programs for B.C. herring population analysis)

Sand (*see* Sediments)

Sand lances (*see* Lance; Lances)

Sandeman, Edward John
CJG 20 (past, present, & future biological considerations of Gulf of St. Lawrence redfish fishery)

Sanderson, John Graham
S 1771 (some aspects of pulpmill effluent impact on Alberni Inlet, B.C.)

Sangalang, Gloria Josefina Balolong
S 1768 (corticosteroids in South American lungfish plasma)
1814 (cadmium-induced testicular injury & androgen synthesis alteration in brook trout)

Sarasia tubulosa (*see* Jellyfishes)

Sardine; Sardinella (*see* separate index in J 30(12,2))

Saskatchewan (*see also* names of localities and bodies of water)
B 184 (freshwater fishes of)

Saskatchewan River, Alta., Sask., and Man.
J 30(5): 643 (mercury uptake by caged rainbow trout in)

Sauger (*Stizostedion canadense*)
J 30(5): 685 (Na tripolyphosphate effect on thaw-drip & taste of fillets)
(7): 927 (malate dehydrogenase isozymes electropherograms re taxonomic discrimination of walleye & their suspected hybrids)
(9): 1327 (gastric digestion rates)
B 184: 762 (full description, etc., in Canada)

Saunders, Lloyd Harrell
J 30(7): 1033 (estimating stream populations of premigrant brook trout)

Saunders, Richard Lee
J 30(2): 223 (young Atl. salmon swimming performance as affected by reduced oxygen concentration in respirometer)
(12,1): 1898 (reciprocal photoperiod regime effect on standard rate of Atl. salmon oxygen consumption)
S 1775; 1776 (properties of silvery layers of salmon & herring scales & skin)
A 292 (salmonid aquaculture in Norway)

Savagaon, Kadayya Annayya
J 30(2): 305 (extending shelf life of Indian mackerel by irradiation)

Sawdust
J 30(4): 493 (in substrate of Penobscot R. estuary, Maine, re microbenthic ecology)

Sawpalate, stout (*Serrivomer beani*)
J 30(1): 134 (lengths of 4 specimens from in or off Gulf of Maine)

Saxicave, Arctic (*Hiatella arctica*)
J 30(10): 1583 (adductor muscle gross structure)

Saxidomus giganteus (*see* Clam, butter)

Scad, round (*Decapterus punctatus*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, offshore SE coast USA)

Scales
J 30(4): 557 (counts, re hybridization between longnose & white suckers)
(5): 607 (re white sucker age determination)
T 360 (annulus formation in Pac. herring)
S 1775; 1776 (properties of silvery layers of salmon & herring)

Scallop, giant (Atlantic) (*see* Scallop, sea)

Scallop, sea (*Placopecten magellanicus*) (giant scallop)
J 30(1): 45 (hexose monophosphate accumulation & related metabolic changes in unfrozen & thawed adductor muscle)
(2): 173 (underwater observations of effects of dredging & trawling on bottom sediments of beds)
(10): 1583 (adductor muscle gross structure)
S 1737 (carbohydrases of digestive gland & crystalline style)
1769 (size, re progressive loss of byssus attachment)

Scarborough, Arla M.
J 30(11): 1738 (identification of microfungal encrustation on snow crab carapace)

Scarratt, David Johnson
J 30(9): 1370 (claw loss & other wounds in commercially caught lobsters)
(12,I): 1819 (abundance, survival, vertical & diurnal distribution of lobster larvae in Northumberland Strait, 1962–63, re commercial stocks)
T 362 (odometer for speed & distance of Irish moss rakes)

Scarsbrook, J. R.
T 390 (purse seine catches of sockeye salmon, etc., Babine L., B.C., 1972)

Scattering layer (*see* Sounding, echo)

Scaup (*see* Ducks)

Scenedesmus quadricauda (*see* Photosynthesis)

Schachte, John Henry, Jr.
J 30(1): 116 (agglutinating antibodies production in channel catfish against columnaris disease bacterial pathogen)

Scherer, Eberhard
J 30(10): 1594 (recording avoidance movements of fish)

Schindler, David William
J 30(10): 1409 (overview of experimental approaches to limnology)
(10): 1409, 1415, 1475, 1501, 1511 (series of papers re chemolimnology of small lakes in FRB Experimental Lakes Area, NW Ont.)
S 1773 (CO_2 role in maintaining phytoplankton standing crops)

Schmidt, Dana Charles
J 30(9): 1301 (metabolism & biliary excretion of a dye by rainbow trout)

Schmidt, Russel Van
J 30(10): 1415 (further results of PO_4 & NO_3 enrichment on eutrophication of a lake in the FRB Experimental Lakes Area (ELA), NW Ont.)
(10): 1511 (epilithiphyton production in 2 ELA lakes)

Schools; Schooling (of fish)
J 30(8): 1161 (spottail shiners & yellow perch)
T 389 (interrelation behavior among individuals)
S 1795 (re fishes chemoreception & physiology)

Scolecobasidium (*see* Fungi)

Scomberomorus maculatus (*see* Mackerel, Spanish)

Scophthalmus aquosus (*see* Windowpane)

Scotian Shelf waters, off Nova Scotia
T 402 (analysis of fish assemblages in SW)

Scott, James Stuart
J 30(2): 291 (northern sand lance intestinal helminth parasites)
(3): 451 (feed & inferred feeding behavior of northern sand lance)

Scott, Trudy
J 30(11): 1641 (brown bullhead cell microculture for use in channel catfish virus & antibody quantitation)

Scott, William Beverly
B 155(F) (French edition of Bulletin 155 on Fishes of the Atlantic Coast of Canada)
184 (Freshwater Fishes of Canada)

Sculpin (In addition to the following species many additional species, particularly British Columbia marine species, are described in Bulletin 180 published in 1973, but indexed in advance (from page proof) in Miscellaneous Special Publication No. 18 (1973). Bulletin 180 contains its own index.)

Sculpin, coastrange (*Cottus aleuticus*)
B 184: 820 (full description, etc., in Canada)

Sculpin, deepwater (*Myoxocephalus quadricornis*) (fourhorn sculpin)
B 184: 842 (full description, etc., in Canada)

Sculpin, fourhorn (*see* Sculpin, deepwater)

Sculpin, longhorn (*Myoxocephalus octodecemspinosus*)
T 361 (alimentary tract morphology re feed habits)
402 (re fish assemblages)

Sculpin, mosshead (*Clinocottus globiceps*)
J 30(1): 129 (evidence for homing instinct)

Sculpin, mottled (*Cottus bairdi*)
J 30(6): 761 (diel habits in Ont. lakes)
B 184: 826 (full description, etc., in Canada)

Sculpin, Pacific staghorn (*Leptocottus armatus*)
B 184: 10 (observed in Canadian fresh or brackish waters)

Sculpin, prickly (*Cottus asper*)
B 184: 823 (full description, etc., in Canada)
T 390 (catches during experimental purse seining, Babine L., B.C., 1972)

Sculpin, sharpnose (*Clinocottus acuticeps*)
B 184: 10 (observed in Canadian fresh or brackish waters)

Sculpin, shorthead (*Cottus confusus*)
B 184: 835 (full description, etc., in Canada)

Sculpin, slimy (*Cottus cognatus*)
J 30(6): 761 (diel habits in Ont. lakes)
B 184: 830 (full description, etc., in Canada)

Sculpin, spoonhead (*Cottus ricei*)
B 184: 839 (full description, etc., in Canada)

Sculpin, torrent (*Cottus rhotheus*)
B 184: 837 (full description, etc., in Canada)

Sea level
B 182 (Gulf of St. Lawrence, geologically recent changes)
T 375 (mean, N Pac. Ocean 1971)

Sea lion, Steller's (*Eumetopia jubata*)
A 291 (protection, & as increasing tourist attraction, B.C.)

Sea otter (*Enhydra lutris*)
A 291 (brief account of feed & reinstated status on NE Pac. coast)

Sea urchin, green (*Strongylocentrotus droebachiensis*)
CJG 19 (Atl. Canadian fishery)
S 1751 (bunker C oil in N.S.)
1790 (energy transformations, St. Margaret's Bay, N.S.)

Sea urchin, red (*Strongylocentrotus franciscanus*)
T 400 (preliminary investigation of B.C. resources)

Sea water (*see also* Oceanography)
J 30(2): 293 (mercury content, off California)
(11): 1611 (accommodation of some fuel oils in)
(11): 1619 (behavior of chlorinated hydrocarbons in, & its sediments)
S 1815 (effects of sea salts on compressibility)

Sea water, refrigerated (RSW) (for holding fishery catches)
T 363 (vs. ice for chilling Pac. halibut at sea re keeping quality after freezing)
S 1763 (hypoxanthine & nucleotide levels in Pac. halibut stored in)
1821; 1822 (effect on quality of canned sockeye salmon from fish stored in)
A 264 (operating instructions for systems on B.C. salmon packer vessels)
284 (description & operation of portable unit for Central American artesanal fisheries (in Spanish & English))
285 (for holding shrimp on Central American shrimp trawlers (in Spanish & English))

Seal, gray (*Halichoerus grypus*)
J 30(6): 843 (mercury uptake of various tissues)
A 291 (habitat & status, Canadian Atl. coast)

Seal, harbour (*Phoca vitulina*)
J 30(3): 471 (mercury, DDT, & PCB residues in, Bay of Fundy & Gulf of Maine)
(6): 843 (mercury uptake of various tissues)
T 344 (dibutyl phthalate environmental pollutant found in blubber)
S 1810 (instantaneous explosive branding device)
A 291 (hunted for bounty in Canadian waters)

Seal, harp (*Pagophilus groenlandicus*)
J 39(1): 17 (feeding, growth, & productivity in NW Atl. Ocean)
(1): 124 (transatlantic migration of a)
(5): 595 ((blubber organochlorine residue levels variation with age, Gulf of St. Lawrence)
(6): 843 (mercury uptake of various tissues)
(8): 1053 (residues of DDT & its metabolites in Canadian Atl. coast)
S 1810 (instantaneous explosive branding device)

Seal, hood (*Cystophora cristata*)
J 30(6): 843 (mercury uptake of various tissues)
S 1810 (instantaneous explosive branding device)

Seal, ringed (*Phoca hispida*) (*Pusa hispida*)
J 30(10): 1592 (vocalization in)
B 181 (population dynamics in E Canadian arctic)
A 294 (populations management in E Canadian arctic; habits; hunting & utilization by Eskimos)

Season (*see also* Behavior; *also* biological and physical phenomena affected by season)
J 30(1): 113 (effects on rainbow smelt odd-chain fatty acid levels, N.S.)
(2): 157 (effect on trawler-caught cod muscle protein salt-extractability, & stability during frozen storage)

(2): 215 (effect on vitamin B_{12} & other nutrients distribution & concentrations in Strait of Georgia and Juan de Fuca Strait)
(2): 320(F) (objective analysis of seasonal thermocline (e.g. Gulf of St. Lawrence))
(7): 867(F) (effect on St. Lawrence R. estuary benthic epifauna settlement)
(11): 1697 (re temperature selection by 4 W L. Erie fishes)
(12, I): 1779 (cycles of net plankton photosynthesis, L. Ontario)
(12, I): 1905 (seasonal cycle of feed & feeding, Bonavista Bay lobsters, Nfld.)
T 337 (effect on phytoplankton composition & distribution in FRB Experimental Lakes Area lakes in NW Ont.)
352 (re distribution of coliform bacteria in Bedford Basin, N.S.)
365 (effect on fat & water content of Nfld. herring)

Seatrout, spotted (*Cynoscion nebulosus*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, SE coast USA)

Seattle, Wash.
J 30(8): 1240 (absence of acute effects of estuarial sediments on threespine sticklebacks & coho salmon)

Seaweeds (*see also* Algae; Phaeophyta; Rhodophyta)
J 30(1): 83 (effects of fuel oil spill on, Chedabucto Bay, N.S.)
CJG 19 (environmental effects of sea urchin feeding on, Canadian Atl.)
T 400 (environmental effect of sea urchin feeding on, B.C.)
S 1750; 1820 (chemical structure of glucans)
1790 (ecological energetics of sea urchin in seaweed zone of St. Margaret's Bay, N.S.)

Sebastes aleutianus (*see* Rockfish, roughnose)
alutus (*see* Perch, Pacific ocean)
ciliatus (*see* Rockfish, dusky)
crameri (*see* Rockfish, darkblotched)
fasciatus (*see* Redfish, deepwater)
marinus (*see* Redfish)
mentella (*see* Redfish, deepwater)
(for additional references to the above species, and to other species of *Sebastes*, *see also* Bulletin 180 which contains its own index and is also indexed in Miscellaneous Special Publication 18.)

Sediments
J 30(2): 173 (underwater observations of trawling & dredging on, re scallop beds)
(2): 285 (tunnel digging in mud by newly settled lobsters)
(2): 287 (improved type of grab for sampling benthos in)
(3): 345 (integrated quantitative determination of chlorophylls in)
(4): 493 (macrobenthic ecology of sawdust-bearing, in Penobscot R. estuary, Maine)
(7): 867(F) (re seasonal settlement of benthic epifauna, St. Lawrence R. estuary)
(8): 1240 (from dredging a Seattle, Wash., estuary; effects on threespine sticklebacks & coho salmon)
(9): 1317 (coupling carbon flow re oxygen uptake)
(10): 1441 (gas-chromatographic determination of carbonates in freshwater)
(11): 1619 (behavior of chlorinated hydrocarbons in natural-water)
(12, I): 1841 (degradation of TFM lampricide by bottom)
B 182 (Gulf of St. Lawrence)
T 393 (size composition, off Point Grey, B.C., re preference by blackbelly eelpout)
396 (mercury distribution in, Howe Sound, B.C.)
S 1774 (flux rate of major ions from, into waters of FRB Experimental Lakes, NW Ont.)
1809 (identification & distribution of yellow elemental phosphorus pollution in Long Harbour, Placentia Bay, Nfld.)
1805 (re Gulf of St. Lawrence marine geology)

Seining
T 390 (purse seine catches of sockeye salmon, etc., Babine L., B.C., 1972)
A 287 (brine-spray freezing system for Central American small tuna seiners (in Spanish & English))

Sekerak, Aaron Daniel
S 1832 (helminths of NE Pac. ocean perch)

Selectivity of nets (*see* Nets)

Semotilus atromaculatus (*see* Chub, creek)
corporalis (*see* Fallfish)
margarita (*see* Dace, pearl)

Sergeant, David Ernest
J 30(1): 17 (NW Atl. harp seal feeding, growth, & productivity)
(1): 124 (transatlantic migration of a harp seal)
(5): 595 (variations of organochlorine residue levels in blubber re age of Gulf of St. Lawrence harp seals)
(6): 843 (mercury in Atl. seal tissues)
(7): 1009 (age, growth, & maturity of NE Florida bottlenosed dolphin)
(8): 1065 (white whale biology, W Hudson Bay)
S 1752 (ICNAF 1963 sightings of marine mammals, N Atl.)
1810 (instantaneous explosive branding device for seals)
A 291 (habitats & status of some Canadian coastal aquatic mammals)
296 (review of book on the blue whale)

Seriola dumerili (*see* Amberjack, greater)

Serrivomer beani (*see* Sawpalate, stout)

sector (*see* Eel, snipe)

Serum (*see also* Blood)
J 30(1): 31 (physicochemical characteristics of, re endrin pesticide toxicology in rainbow trout)

Seston
S 1780 (size separation by membrane & glass-fiber filters)

Setae
J 30(9): 1337 (development & histology re American lobster molting)

Sewage (*see also* Pollution)
J 30(2): 167 (re Mollusca & aqautic flora in Ottawa R. near Ottawa, Ont., & Hull, Que.)
(7): 1014 (system contribution to heavy metals contamination of various organisms on Fraser R. mudflats, B.C.)
(7): 1026 (nitrilotriacetate discharge from 2 sewage treatment systems in Winnipeg, Man.)
(9): 1385 (mussel & periwinkle shell growth rate as indicator of pollution by)
T 352 (spatial & seasonal distribution of coliform bacteria in Bedford Basin, N.S.)
S 1853 (re groundwater pollution)
A 277; 288 (re cause & control of cultural eutrophication of lakes)
282 (re pollution of B.C. shoreline life)
290 (pollution in Strait of Georgia, B.C.)

Sex
T 365 (effect on fat & water content, Nfld. herring)

Sex ratio (The following is not an exhautive list of references to this subject; data will also be found implied in references under the names of organisms)
J 30(8): 1065 (white whales, W Hudson Bay)
(8): 1215 (Arctic char, Canning R., Alaska)
T 353; 392 (Nfld.–Labrador commercially caught salmon)
S 1825 (NW Atl. sei whale catches)

Sexual behavior (*see* Behavior; Maturity; Reproduction; Spawning)

Sexual dimorphism (*see* Dimorphism)

Sexual maturity (*see* Gonads; Hormones; Maturity; Ovary; Reproduction; Spawning; Testes)

Shad, American (*Alosa sapidissima*)
J 30(1): 105 (handling effects on dissolved oxygen requirements)
(8): 1195 (thermal effects of nuclear power plant discharge on)
(12,1): 1847 (homing behavior)
B 184: 128 (full description, etc., in Canada)
S 1840 (fishery & its restoration, in Canada (as of 1912))

Shad, gizzard (*Dorosoma cepedianum*)
J 30(6): 761 (diel habits in Ont. lakes)
B 184: 133 (full description, etc., in Canada)

Shape (of organisms) (*see also* Morphology)
T 341 (actograph for recording locomotor activity of laterally or ventrally compressed aquatic organisms of medium size)

Shapiro, Maurice A.
J 30(8): 1147 (lime-neutralized iron hydroxide suspensions effect on fathead minnow survival, growth, & reproduction)

Shark, basking (*Cetorhinus maximus*)
S 1772 (stereochemistry of hydrocarbon in liver oil)

Shark, dusky (*Carcharhinus obscurus*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, liver, brain, & pup, SE coast USA)

Shark, sandbar (*Carcharhinus milberti*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of liver, & Hg in muscle, SE coast USA)

Shark, silky (*Carcharhinus falciformis*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle & some organs, SE coast USA)

Shaykewich, Karen J.
J 30(8): 1235 (masking or neutralizing muddy flavor in rainbow trout by smoking & canning)

Sheep
S 1767 (branched monomethyl fatty acids in fat)

Sheepshead (*see* Drum, freshwater)

Shelbourn, John Edward
J 30(8): 1191 (temperature & feeding regime effect on sockeye salmon fry growth rate & size)

Sheldon, Raymond Wilfred
T 379 (particle concentration measurement in natural waters with Coulter Counter)
S 1780 (marine seston size separation by membrane & glass-fiber filters)
1781; 1786 (particulate matter size distribution in N & S Atl. & Pac. oceans)
1786 (microorganisms distribution & activity in ocean water)

Shell (*see also* Carapace)
J 30(9): 1385 (growth rate of mussel & periwinkle, as indicator of pollution)
S 1739 (growth rate of horse clam)

Shellfish (*see also* Lobster; Shrimp; Shrimps; *also* general classifications and names shown in heading Mollusca)
J 30(2): 167 (abundance of 22 pelecypod species in Ottawa R.)
(10): 1583 (gross structure of adductor muscle in various pelecypods)

T 342 (in bottom fauna survey of certain Okanagan Valley lakes, B.C.)
S 1746 (cultivation potential in E Canada)

Shieh, Hang-shan
S 1823 (arginine & arginine dihydrolase re *Aeromonas salmonicida* catabolism)

Shiner, bigmouth (*Notropis dorsalis*)
B 184: 452 (description, from Man. rivers)

Shiner, blackchin (*Notropis heterodon*)
B 184: 454 (full description, etc., in Canada)

Shiner, blacknose (*Notropis heterolepis*)
B 184: 456 (full description, etc., in Canada)

Shiner, bridle (*Notropis bifrenatus*)
B 184: 444 (full description, etc., in Canada)

Shiner, common (*Notropis cornutus*)
J 30(6): 761 (diel habits in Ont. lakes)
B 184: 448 (full description, etc., in Canada)

Shiner, emerald (*Notropis atherinoides*)
J 30(9): 1379 (in key)
(11): 1697 (temperatures selected seasonally in W L. Erie)
B 184: 440 (full description, etc., in Canada)

Shiner, golden (*Notemigonus crysoleucas*)
B 184: 434 (full description, etc., in Canada)

Shiner, mimic (*Notropis volucellus*)
B 184: 473 (full description, etc., in Canada)

Shiner, pugnose (*Notropis anogenus*)
B 184: 438 (full description, etc., in Canada)

Shiner, redfin (*Notropis umbratilis*)
J 30(9): 1379 (in key)
B 184: 472 (full description, etc., in Canada)

Shiner, redside (*Richardsonius balteatus*)
B 184: 503 (full description, etc., in Canada)
T 390 (catches during experimental purse seining, Babine L., B.C., 1972)

Shiner, river (*Notropis blennius*)
B 184: 446 (full description, etc., in Canada)

Shiner, rosyface (*Notropis rubellus*)
J 30(9): 1379 (in key)
B 184: 463 (full description, etc., in Canada)

Shiner, sand (*Notropis stramineus*)
B 184: 469 (full description, etc., in Canada)

Shiner, silver (*Notropis photogenis*)
J 30(9): 1379 (first records from Canada, also in key)
B 184: 383 (footnote) (Grand R., Ont.)

Shiner, spotfin (*Notropis spilopterus*)
B 184: 466 (full description, etc., in Canada)

Shiner, spottail (*Notropis hudsonius*)
J 30(8): 1161 (behavioral interactions with yellow perch & northern pike)
(8): 1195 (thermal effects of nuclear power plant discharge on)
B 184; 459 (full description, etc., in Canada)

Shiner, striped (*Notropis chrysocephalus*)
B 184: 383 (footnote) (considered as species distinct from common shiner)

Shipping (*see also* Transportation)
B 184: 1 5 (fish specimens for identification)
CJG 19 (sea urchins, commercially)

Shirahata, Soichiro
J 30(8): 1191 (temperature & feeding regime effect on sockeye salmon fry growth rate & size)

Shorey, Wayne Knight
J 30(4): 493 (macrobenthic ecology of sawdust-bearing substrate in Penobscot R. estuary, Maine)

Shoveler (*see* Ducks)

Shrimp (Central American) (*Penaeus*)
A 285 (chilling or freezing on trawlers in Central America (in Spanish & English))

Shrimp, ghost (*Callianassa californiensis*)
J 30(7): 1014 (cadmium content, Fraser R. mudflats, B.C.)

Shrimps
S 1838 (various, SE Vancouver Is. coast (as of 1930))

Sialis (*see* Megaloptera)

Sibert, John
T 347 (source water for entrainment in Alberni Inlet, B.C.)
S 1827; 1828 (effects of pulpmill effluent on dissolved oxygen of Alberni inlet)

Siefert, Richard Edwin
J 30(6): 849 (effects of reduced oxygen concentrations on northern pike embryos & larvae)

Sight (*see* Eye; Vision)

Silicon derivatives
S 1830 (in primary wing feathers of waterfowl)

Silt (*see* Matter, particulate; Sediments)

Silver derivatives
J 30(4): 560 (influence on fish aminolevulinate dehydrase activity)

(7): 1014 (in oyster, clam, & other bottom organisms, Fraser R. mudflats)

"Silvering" (*see* Scales; Skin)

Silverside, Atlantic (*Menidia menidia*)
J 30(3): 363 (copper-induced lesions in various organs)

Silverside, brook (*Labidesthes sicculus*)
B 184: 652 (full description, etc., in Canada)

Simuliidae (blackflies; gnats)
CNG 95 (description)

Sivak, Jacob Gershon
J 30(8): 1141 (accomodative lens movements re feeding behavior in 7 freshwater fish species)

Size: Size distribution (of organisms) (*see also* Distribution; Growth; Length; Morphology; Nets; Shape; Weight) (*see also* next heading)
J 30(2): 143 (cell-size distribution of cultured marine planktonic algae)
(2): 201 (of simulated meal (glass beads) effect on digestive enzyme secretion rates in bluegill)
(3): 379 (effect on sockeye salmon metabolic rates & critical swimming speeds)
(5): 601 (of freshwater fishes re selection by sea lamprey as prey)
(5): 607 (at maturity, re white sucker populations age & growth)
(8): 1111 (various measurements of several NW Atl. odontocete Cetacea)
(8): 1191 (sockeye salmon fry, re temperature & feeding regime effect)
(11): 1736 (karyotypes & erythrocytes, of some *Poeciliopsis* fishes)
B 180 (maximum recorded, or average, of 325 species of B.C. marine fishes)
184 (maximum recorded, or average, of 181 species of Canadian freshwater fishes)
CJG 19 (re green sea urchin fishery, Canadian Atl. coast)
T 353; 392 (composition of Nfld. & Labrador commercial salmon catch)
400 (re red sea urchin fishery, B.C.)
S 1769 (of sea scallop re progressive loss of byssus attachment)
1780 (marine seston size separation by membrane & glass-fiber filters)
1781 (distribution of suspended particles in several oceans)
1829 (fractionation of primary producers in subarctic Pac. Ocean)

Size; Size distribution (of other than organisms) (*see* Counting; Filters; Matter, particulate; Sediments)

Skaha Lake, B.C.
J 30(4): 519 (crustacean plankton re eutrophication)
(7): 917 (thermal structure re several adjacent lakes, Okanagan Valley, B.C.)
T 342 (bottom fauna survey)

Skate, barndoor (*Raja laevis*)
T 402 (re fish assemblages)

Skate, clearnose (*Raja eglanteria*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, liver, & egg, SE coast USA)

Skate, deepwater (*Bathyraja richardsoni)*
J 30(11): 1729 (assignment from *Raja richardsoni*)
(12, I): 1831 (first records from NW Atl.; description, distribution, & biology)

Skate, little (*Raja erinacea*)
T 361 (alimentary tract morphology re feed habits)

Skate, thorny (*Raja radiata*)
T 402 (re fish assemblages)
S 1760 (testosterone & its glucuronide in testicular & peripheral plasma)

Skate, winter (*Raja ocellata*)
T 402 (re fish assemblages)

Skeletonema (*see* Diatoms)

Skin (*see also* Color; Pigment; Scales)
J 30(3): 395 (little effect of kraft pulpmill effluent on young coho salmon)
(6): 761 (diel effects on pigmentation, in Ont. lakes fishes)
(6): 841 (molybdenum uptake in rainbow trout & kokanee)
(8): 1099 (changes in chinook & coho salmon treated with testosterone derivative to enhance weight increase in young)
(8): 1111 (NW Atl. odontocete Cetacea color)
S 1775; 1776 (properties of silvery layers of salmon & herring)
A 294 (re Eskimo hunting & utilization of ringed seal)

Skoglund, Liv
J 30(2): 143 (growth & cell-size distribution of cultured marine planktonic algae)

Skud, Bernard Einar
J 30(12,2): 2393 (management of Pac. halibut fishery)

Skull (*see* Bone)

Slave River, N.W.T. (*see* Great Slave Lake)

Smelt family (in addition to following Smelt headings, *see also* B 180: 136; B 184: 306)
T 368 (bibliography of over 1800 titles, 1553–1972)

Smelt, delta (*Hypomesus transpacificus*)
T 368 (bibliography)

Smelt, longfin (*Spirinchus thaleichthys*)

B 184: 318 (full description, etc., in Canada (*see also* B 180: 146))
T 368 (bibliography)

Smelt, night (*Spirinchus starksi*) (*see* Bibliography, reference T 368)

Smelt, pond (*Hypomesus olidus*)
B 184: 308 (full description, etc., in Canada)
T 368 (bibliography)

Smelt, rainbow (*Osmerus mordax*)
J 30(1): 113 (seasonal & local variations in odd-chain fatty acid levels)
(6): 761 (diel habits in Ont. lakes)
(10): 1586 (re postglacial colonization of Matamek R., Que.)
B 184: 310 (full description, etc., in Canada (*see also* B 180: 143))
T 368 (bibliography)

Smelt, surf (*Hypomesus pretiosus*)
B 180: 139 (full description, etc., in Canada)
T 368 (bibliography)

Smelt, whitebait (*Allosmerus elongatus*)
T 368 (bibliography)

Smith, Barbara
J 30(1): 91 (formaldehyde determination in fish muscle)
(8): 1205 (formaldehyde production from trimethylamine oxide in gadoid fishes, & its effect on salt-extractable proteins & denaturation in frozen fillets therefrom)

Smith, David Wade
S 1738 (temperature effect on horse clam larval development)
1739 (horse clam breeding & growth in S B.C.)

Smith, Edward Julian
J 30(8): 1147 (lime-neutralized iron hydroxide suspensions effect on fathead minnow survival, growth, & reproduction)

Smith, Howard Donald
J 30(7): 947 (*Eubothrium salvelini* cestode infection effects on young sockeye salmon)

Smith, Janice Elaine
T 338; 398 (1971 & 1972 B.C. groundfish fishery & related fisheries)
T 340 (length & age composition of Hecate Strait commercial rock sole, 1964–71)

Smith, Lesley Elizabeth
T 387 (zoobenthos response to vegetable additions to stream substrates)

Smith, Lloyd Lyman, Jr.
J 30(9): 1327 (walleye feeding periodicity, digestion, consumption, & conversion efficiency)

Smith, Michael
J 30(3): 471 (mercury, DDT, & PCB residues in Gulf of Maine & Bay of Fundy harbour seals)

Smith, Michael Stuart
T 345 (catches during FRB experimental groundfish cruise off SW Vancouver Is., Sept. 1972)
373 (tagging young sablefish, NE Vancouver Is.)
388 (1972 sablefish culture results)
S 1841 (isolation & amino acid sequence of chinook salmon neurohypophyseal hormones)
1842 (oxytocic activity changes of hypophysis during chinook salmon sexual maturation)

Smith, Paul
S 1754 (instability of ocean populations)

Smith, Roderick M.
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle of some organs, 33 inshore & offshore fish species, SE coast USA)
(12,1): 1894 (DDT & dieldrin effects on winter flounder egg development)

Smith, Thomas Georges
B 181 (ringed seal population dynamics, E Canadian arctic)
S 1843 (birds of Holman region, W Victoria Is., W Canadian arctic)
A 294 (ringed seal management research in E Canadian arctic; seal habits; hunting & utilization by Eskimos)

Smith, Waldena Elliot
J 30(5): 702 (cooking effects on residues of chlorinated hydrocarbons in L. Michigan chinook & coho salmon flesh)

Smith, Wesley Earl
J 30(2): 329 (flagfish short reproductive period advantageous for rapid chronic toxicity bioassays)

Smoking; Smoked products
J 30(5): 631 (*Clostridium botulinum* control in cold-smoked salmon (review))
(8): 1235 (to mask or neutralize rainbow trout muddy flavor)
S 1765 (presmoking & smoking effects on goldeye texture)

Smolts (*see* names of adult fish, e.g. Salmon; Trout)

Snail, marine (*see* Periwinkle)

Snipe eel (*see* Eel, slender snipe; Eel, snipe)

Sochasky, Jeffrey Bryan
J 30(10): 1600 (does eyestalk ablation accelerate lobster molting?)

Sodium derivatives (*see also* Composition, chemical; Salinity; Salt)
J 30(1): 71 (variance in concentration in Pac. halibut & chinook salmon flesh after brine- vs. plate-freezing fish at sea)
S 1744 (flux rate of Na ions from lake sediments into lake waters)
1830 (content of primary wing feathers of waterfowl)

Sole, Dover (*Microstomus pacificus*)
T 338 (B.C. landings 1961–71 & additional 1971 data)
345 (catches during FRB experimental cruise off SW Vancouver Is., Sept. 1972)
398 (1972 B.C. commercial fishery catch & effort statistics)

Sole, English (*Parophrys vetulus*) (lemon sole)
T 338 (B.C. landings 1961–71 & additional 1971 data)
398 (catch & effort statistics, B.C. commercial fishery, 1972)

Sole, lemon (*see* Sole, English)

Sole, petrale (*Eopsetta jordani*) (brill)
J 30(11): 1745 (use of plastein reaction to recover protein from filleting wastes; amino acid composition of resulting plastein)
T 338 (B.C. landings 1961–71 & additional 1971 data)
398 (1972 B.C. commercial fishery catch & effort statistics)

Sole, rex (*Glyptocephalus zachirus*)
T 338 (B.C. landings 1961–71 & additional 1971 data)
398 (1972 B.C. commercial fishery catch & effort statistics)

Sole, rock (*Lepidopsetta bilineata*)
T 338 (B.C. landings 1961–71 & additional 1971 data)
340 (length & age composition of Hecate Strait commercial landings, 1964–71)
398 (1972 B.C. commercial fishery catch & effort statistics)

Sonar (*see also* Tracking; Ultrasonics)
T 350 (feasibility of high-frequency echo sounding for mapping Gulf of St. Lawrence euphausiid concentrations)

Sorastrum sp. (*see* Photosynthesis)

Sorting
T 354 (benthos by flotation media)

Sosiak, Albert John
J 30(7): 1021 (one-way glass for assessing fish discrimination for feed)

Sosinski, Josef
(12,2): 2254 (influence of industrial fisheries on catches for human food)

Sound, reactions to
J 30(6): 761 (of various fishes in Ont. lakes)

Sound, ultrasonic (*see* Echolocation; Tracking; Ultrasonics; Vocalization)

Sound production (*see* Echolocation; Vocalization)

Sound scattering layers (*see* Sounding, echo)

Sounding, echo (*see also* Echolocation; Tracking)
T 350 (high-frequency sonar for mapping euphausiid concentrations)

Southcott, Burnett Anne
J 30(5): 631 (*Clostridium botulinum* control in cold-smoked salmon (review))

Spartina alterniflora (*see* Salt-marsh cord grass)

Spat (*see* Oyster)

Spawning (*see also* Eggs; Fecundity; Life History; Migration; Reproduction; *also* names of oviparous organisms, particularly Herring; Salmon)
J 30(3): 357 (time & place of creek chub, Mink R., Man.)
(6): 853 (role of woody debris in pumpkinseed nest site selection)
(6): 860 (probable, of alewife north to E Nfld.)
(7): 975 (thermal requirements for brook trout)
(7): 995 (chemical signals re rainbow trout behavior)
(8): 1215 (Arctic char, Canning R., Alaska)
(8): 1221 (SE L. Michigan trout-perch)
CNG 93 (spawning channels vs. stream protection for salmon & trout)
T 355; 356; 357; 359 (re B.C. herring populations, 1950–51 to 1969–70)
365 (re Nfld. herring fat & water content)
399 (deposition data, re computer programs for B.C. herring population analysis)
S 1739 (horse clam, in S B.C.)
A 273 (logging debris effects on production of stream salmonids production)

Speciation (*see also* Subspeciation; Systematics; Taxonomy)
S 30 11 1655 (NW Atl. redfish, from hydroid on copepod parasitic to *Sebastes mentella* & other redfish, e.g. *S. fasciatus*)

Species, endangered (*see also* Conservation, Management)
J 30(4): 563 (shortnose sturgeon, Montsweag Bay, Maine; correction on J 30(8): 1257)

Species, indicator

J 30(11): 1655 (presence of a hydroid on a parasitic copepod of redfish as a possible indicator of redfish subspeciation)

Species, introduced
T 382 (stocking Canadian prairie pothole lakes with wild vs. domestic rainbow trout)

Species, new (*see also* Genera; Subspeciation)
J 30(2): 205 (Pac. brook lamprey, *Lampetra pacifica*, (nonparasitic) from Oregon & Washington)
(3): 389 (marine triclad turbellarian, *Sabussowia wilhelmii*, from P.E.I.; key; possible synonymy with 3 other turbellarians)
(5): 665 (*Monodiamesa depectinata*, *M. tuberculata*, & *M. prolilobata* Nearctic chironomids)
(6): 754 (*Lepeophtheirus oblitus* caligid from *Sebastes* spp., B.C.)
(8): 1155 (*Lyrodiscus rupestris* monogenean trematode from Great Lakes rock bass)
S 1759 (possible new *Terebratulina* brachiopod, in B.C.)
1783 (new genus & species, *Impexus hamondi*, of Lernaeoceridae copepod)
1838 (*Spirontocaris macrodonta* decapod, SE Vancouver Is. (1930))

Species, new records or range extensions of
J 30(1): 131 (sea lamprey in L. Ontario in 1835)
(1): 134 (9 mesopelagic fishes from Gulf of Maine & adjacent continental slope)
(3): 464 (*Uteriporus vulgaris* marine triclad turbellarian, first N America record)
(5): 683 (first Canadian records of stoneroller & blackstripe topminnow (from a SW Ont. river))
(6): 860 (first E Nfld. record of gaspereau (alewife) and probable spawning there)
(8): 1111 (several odontocete Cetacea, NW Atl.)
(8): 1155 (first Canadian records of several *Lyrodiscus* monogenetic trematodes)
(9): 1379 (first Canadian records of silver shiner)
(10): 1559 (*Lipogenys gilli* rare fish, N to Grand Bank off Nfld.)
(11): 1655 (first NW Atl. record of *Ichthyocodium sarcotretis* hydroid on *Sphyrion lumpi* copepod parasite of NW Atl. deepwater redfish)
(11): 1752 (*Anguilla rostrata* eels in waters over E North American continental shelf)
(12,1): 1831 (*Bathyraja richardsoni* deepwater skate from NW Atl.)
(12,1): 1888 (southern N.S. record of slender eelblenny)
(12,1): 1909 (first records of Chinese mitten crab, *Eriocheir sinensis*, from N America)
(12,1): 1911 (blackwing flyingfish, bulleye, bigeye, & greater amberjack new to Canadian Atl.)
B 180 (B.C. marine fishes)
184 (Canadian freshwater fishes)
S 1759 (3 living Brachiopoda species new to B.C.)
1838 (SE Vancouver Is. shore decapods (as of 1930))

Specimens
B 184: 15 (preservation & forwarding of freshwater fishes for identification)
S 1753 (preservation & preparation of Chaoboridae diptera)

Spectroradiometer (*see* Radiometer)

Speed of swimming (*see* Swimming)

Spencer, Keith David
T 365 (fat & water content of Nfld. herring re spawning, length, sex, season, etc.)

Sphaerium (*see* Clams (freshwater))

Sphyrion lumpi (*see* Caligoida)

Sphyrna lewini (*see* Hammerhead, scalloped)
tiburo (*see* Bonnethead)

Spiratella (*see* Pteropoda)

Spirinchus starksi (*see* Smelt, night)
thaleichthys (*see* Smelt, longfin)

Spisula solidissima (*see* Clam, Atlantic surf)

Splake (hybrid of lake trout × brook trout)
J 30(3): 401 (inheritance of thermal resistance)
(4): 579 (parental age re progeny survival)
(5): 601 (size re predation by sea lamprey)

Spleen
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content, in 4 offshore fish species, SE coast, USA)
(3): 395 (little effect of kraft pulpmill effluent on coho salmon)
(6): 841 (molybdenum uptake in rainbow trout & kokanee)
S 1805 (elemental phosphorus effects on Atl. herring)

Spoilage, of fishery products (*see* Bacteria; Preservatives; Quality of fishery products)

Sponges
J 30(2): 293 (high mercury concentration in an unidentified species, off California)
T 385 (near shoreline, Howe Sound, B.C.)

Spoor, William Arthur
J 30(5): 698 (short-term physiological indicators of copper effect on brook trout)
(6): 849 (effects of reduced oxygen concentrations on northern pike embryos & larvae)

Spores (*see* Myxosporidia)

Sport fishing (*see* Angling; *also* names of sport fishes)

Spot (*Leiostomus xanthurus*)

J 30(2): 275 (Cd, Cu, & Zn content of muscle, SE coast USA)

Squalus acanthias (*see* Dogfish, spiny)

Squawfish, northern (*Ptychocheilus oregonensis*)
B 184: 487 (full description, etc., in Canada)
T 390 (catches during FRB experimental purse seining, Babine L., B.C., 1972)

Squid
J 30(2): 293 (mercury concentration in *Ommastrophes bartamii* off California)

Sreenivasan, Arunachala
J 30(2): 305 (extending shelf life of Indian mackerel by irradiation)

Ssentongo, George William
J 30(5): 695 (simple methods of estimating mortality rates of exploited fish populations)

St. Lawrence, Gulf of (*see also* Northumberland Strait; Oceanography, northeast Atlantic coastal)
J 30(2): 261 (dispersed & particulate residues of petroleum spills in)
(2): 320(F) (objective analysis of seasonal thermocline)
(5): 595 (organochlorine residue levels variation with age of harp seals)
(6): 856 (seasonal river discharge re local landings of Atl. halibut & lobster)
B 182 (morphology & sediments)
CJG 20 (past, present, & future biological considerations of redfish fishery)
T 349 (tagging & movements of snow crabs)
350 (feasibility of high-frequency sonar mapping of euphausiid concentrations)
S 1850 (marine geology)
A 280 (comparative studies with Strait of Georgia & Gulf of Alaska)

St. Lawrence River, Ont. and Que. (*see also* preceding heading)
J 30(7): 867(F) (seasonal settlement of benthic epifauna in estuary sediments)

St. Margaret's Bay, N.S.
J 30(11): 1717 (analysis of energy flow & production of unexploited plaice population)
T 401 (zooplankton, 1968–71)
404 (variability of water properties & circulation)
S 1779 (phytoplankton nutrients & flushing)
1790 (ecological energetics of green sea urchin in seaweed zone)
1792 (multivariant analysis for identifying benthos functional components)

Staffs, professional, of Fisheries Research Board of Canada
R 1971–1972: 148 (by establishments), 226 (alphabetical list), 1971–72)

Stainton, Michael Paul
J 30(10): 1441 (syringe gas-stripping procedure for gas chromatography of inorganic & organic carbon)

Stamina (*see also* Stress; Swimming)
J 30(2): 325 (re fish swimming speed & red & white muscle function)

Starch
J 30(7): 1017 (liver changes in rainbow trout when fed)
(11): 1647 (effect of dietary addition of, on lobster digestive enzyme secretion)

Starfish, common (*Asterias vulgaris*)
S 1751 (bunker C oil in N.S.)

Starfish, ochre (*Pisaster ochraceous*)
30(12,1): 1861 (1-methyladenosine hydrolase of)

Starvation
J 30(1): 1 (& subsequent feeding effects on sockeye salmon fry survival & growth)
(2): 317 (re feed selection by northern pike)

Stasko, Aviars B.
J 30(1): 119 (hydrophone & bow-mount for tracking fish by ultrasonic telemetry)
(9): 1309 (ultrasonic tracking Fraser R. mature pink salmon coastal movements)
(9): 1402 (pressure-sensing ultrasonic transmitter for tracking aquatic animals)
A 295 (tracking Atl. salmon by implanted ultrasonic transmitter)

Stasko, Dagnija
J 30(9): 1309 (ultrasonic tracking Fraser R. mature pink salmon coastal movements)

Stations and establishments of Fisheries Research Board of Canada (*see* list p. 2541)

Status (*see also* Conservation; Exploitation; Management; Species, endangered)
A 291 (of some Canadian coastal aquatic mammals)

Staurastrum (*see* Photosynthesis)

Steele, Donald Harold
J 30(9): 1374 (winter flounder intertidal feeding & stomach contents, Bay of Fundy)

Stenella coeruleoalba (*see* Dolphin, striped)
plagiodon (*see* Dolphin, spotted)

Stenodus leucichthys (*see* Inconnu)

Stereoisomerism (*see* Acids, fatty)

Sterilization
J 30(2): 269 (of formulated & pelleted fish rations by ethylene oxide)

Steroids; Sterones
S 1761 (corticosteroid dynamics in male sockeye salmon)
1768 (corticosteroids in lungfish plasma)

Stevenson, James Cameron
30(12,I):i (announcement about forthcoming special issue (12,2) of that volume, and index of all 1973 Board publications)
(12,2):1925 (foreword to proceedings of FAO Technical Conference on Fishery Management & Development held in Vancouver, B.C., Feb. 13–23, 1973)
B 180: ix (foreword to that Bulletin on Pacific Fishes of Canada)
183: vii (foreword to that Bulletin on Russian-English fisheries and aquatic biology dictionary)
184: xi (foreword to that Bulletin on Freshwater Fishes of Canada)
MSP 20 (résumé of Fisheries Research Board of Canada history, 1898–1973 (in English & French))

Stewart, James Edward
S 1808 (elemental phosphorus as probable cause of herring moribundity, Placentia Bay, Nfld.)
1848 (partial characterization of a natural agglutinin in lobster hemolymph)
1855 (paradoxical effects of salinity reduction re lobster gaffkemia)

Stewart, Robert
J 30(2): 285 (tunnel digging in mud by newly settled lobsters)

Stickleback, blackspotted (*Gasterosteus wheatlandi*)
B 184: 669 (full description, etc., in Canada)

Stickleback, brook (*Culaea inconstans*)
B 184: 661 (full description, etc., in Canada)

Stickleback, fourspine (*Apeltes quadracus*)
B 184: 658 (full description, etc., in Canada)

Stickleback, ninespine (*Pungitius pungitius*)
J 30(6): 761 (diel habits in Ont. lakes)
(8): 1179 (energy budget in an Alaskan arctic lake)
(10): 1586 (re postglacial colonization of Matamek R., Que.)
B 184: 671 (full description, etc., in Canada)

Stickleback, threespine (*Gasterosteus aculeatus*)
J 30(8): 1240 (resistance to pollutants in sediments dredged from an estuary)
(10): 1586 (re postglacial colonization of Matamek R., Que.)
B 184: 665 (full description, etc., in Canada)

Stickney, Robert
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle & some organs, 33 inshore & offshore fish species, SE coast USA)

Stickwater (*see* Fish processing wastes)

Stirling, Ian
J 30(10): 1592 (vocalization in the ringed seal)

Stizostedion canadense (*see* Sauger)
vitreum vitreum (*see* Walleye)

Stocking
T 382 (Canadian prairie pothole lakes with wild vs. domestic rainbow trout)

Stocks (*see also* Abundance; Fisheries; Mortality; Populations)
J 30(6): 779 (recent changes in composition of Atl. salmon, Miramichi R., N.B.)
(9): 1275 (mechanisms thwarting maintenance of peak-period yields from stocks of Pac. salmons & other fishes)
(11): 1667 (changes in L. Winnipeg whitefish, 1944–69)
(12,I):1819 (abundance, survival, etc., of lobster larvae in Northumberland Strait, 1962–63, re commercial)
T 377 (effects of stock density on survival of lobsters & condition in holding pond)
S 1756 (re fishery research & management)
1826 (fin whales, NW Atl.)

Stomach (*see also* Alimentary tract; Digestion; Feed; Metabolism)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of, in 5 inshore fish species, SE coast USA)
(6): 841 (molybdenum uptake in rainbow trout & kokanee)
(9): 1293 (mercurials uptake by rainbow trout)

Stomach contents (*see* Feed; Predation)

Stomias boa ferox (*see* Dragonfish, boa)

Stonecat (*Noturus flavus*)
B 184: 611 (full description, etc., in Canada)

Stoneflies (*see* Plecoptera)

Stoneroller (*Campostoma anomalum*)
J 30(5): 683 (first Canadian record (from a SW Ont. river))
B 184: 378 (footnote; *see* above reference)

Storage (*see also* Refrigeration)
S 1847 (new technical research on frozen fish)

Storms (*see also* Wind effects)
T 380 (re energy changes in upper ocean)
395 (cause of unusually strong current in Hecate Strait, B.C.)

Strait of... (*see* name of strait)

Strasdine, George Alfred

S 1804 (a glucan isolated from *Clostridium botulinum*)

Strategy, fishing
J 30(2): 249 (comparison of B.C. inshore salmon fishery, Nfld. offshore fishery, & Cornish oyster fishery)

Stress (*see also* Stamina; Swimming)
J 30(6): 831 (sublethal heat stress physiology in young steelhead trout & coho salmon)
(6): 846 (temperature & salinity, re fiddler crab cadmium uptake)

Strongylocentrotus droebachiensis (*see* Sea urchin, green)
franciscanus (*see* Sea urchin, red)

Sturgeon, Atlantic (*Acipenser oxyrhynchus*)
B 184: 92 (full description, etc., in Canada)

Sturgeon, green (*Acipenser medirostris*)
B 184: 90 (full description, etc., in Canada (*see also* B 180: 82)

Sturgeon, lake (*Acipenser fulvescens*)
B 184: 82 (full description, etc., in Canada)

Sturgeon, shortnose (*Acipenser brevirostrum*)
J 30(4): 563 (occurence as endangered species, Montsweag Bay, Maine; correction on J 30(8): 1257)
B 184: 80 (full description, etc., in Canada)

Sturgeon, white (*Acipenser transmontanus*)
B 184: 96 (full description, etc., in Canada (*see also* B 180: 83))

Sturm, Robert Nelson, Jr.
J 30(2): 323 (Na nitrilotriacetate effect on fathead minnow & bluegill gill condition & survival)

Style, crystalline
S 1737 (carbohydrases in sea scallop)

Subba Rao, Durvasula Venkata
T 370 (some current problems in marine phytoplankton productivity (review))

Submersibles
J 30(2): 173 (for underwater observation & photography (re scallop beds))

Subspeciation (*see also* Taxonomy)
J 30(5): 683 (of *Campostoma anomalum* stonerollers)

Substrate (*see* Sediments)

Sucker, bridgelip (*Catostomus columbianus*)
B 184: 536 (full description, etc., in Canada)

Sucker, largescale (*Catostomus macrocheilus*)
B 184: 544 (full description, etc., in Canada)
T 390 (taken during FRB experimental purse seining, Babine L., B.C., 1972)

Sucker, longnose (*Catostomus catostomus*)
J 30(4): 557 (hybrids with white sucker, Kananaskis Reservoir, Alta.)
(6): 761 (diel habits in Ont. lakes)
(10): 1586 (re postglacial colonization of Matamek R., Que.)
B 184: 531 (full description, etc., in Canada)

Sucker, mountain (*Catostomus platyrhynchus*)
B 184: 547 (full description, etc., in Canada)

Sucker, northern hog (*Hypentelium nigricans*)
B 184: 554 (full description, etc., in Canada)

Sucker, spotted (*Minytrema melanops*)
B 184: 561 (full description, etc., in Canada)

Sucker, white (*Catostomus commersoni*)
J 30(4): 557 (hybrids with longnose sucker, Kananaskis Reservoir, Alta.)
(5): 601 (size re predation by sea lamprey)
(5): 607 (populations age & growth re maturity size)
(5): 681 (outbreak of columnaris disease, in a Sask. lake)
(5): 685 (Na tripolyphosphate effect on thaw-drip & taste of fillets)
(6): 761 (diel habits in Ont. lakes)
B 184: 538 (full description, etc., in Canada)
T 390 (taken during FRB experimental purse seining, Babine L., B.C., 1972)
S 1736 (lethal pH)

Suckers (*see also* preceding names of species)
B 184: 23 (schematic diagrams of mouth of Canadian sucker & redhorse species)

Sucrose
J 30(10): 1547 (heterotrophic utilization as carbon source when added to lake)

Suda, A
J 30(12,2): 2121 (development of fisheries for nonconventional species)

Sugars (*see* Glucose; Hexose; Sucrose; *also* Alditol)

Sulfobromophthalein (*see* Dye)

Sulfur derivatives (*see also* Pulpmill effluents)
J 30(10): 1589 (use of silver sulfide electrode for determining sulfide in water)
S 1736 (white sucker pH lethal limit in waters subject to SO_2 atmospheric fallout)
1762 (reaction of malonaldehyde or oxidized linolenic acid with sulfhydryl compounds, re lipids oxidation)
1803 (disulfide & sulfhydryl requirements of L-threonine deaminase activity)

1830 (content of primary wing feathers of waterfowl)

Sunfish, green (*Lepomis cyanellus*)
J 30(2): 317 (re feed selection by northern pike)
(3): 443 (gut nematode *Bulbodacnitis ampullastoma* in)
(7): 905 (temperature effects on responses of gonads to carp pituitary extract & hormone)
B 184: 710 (full description, etc., in Canada)

Sunfish, longear (*Lepomis megalotis*)
B 184: 724 (full description, etc., in Canada)

Sunfish, ocean (*Mola mola*)
S 1798 (isolation of a methyl-hexadecenoic acid from lipids)

Sunfish, pumpkinseed (*see* Pumpkinseed)

Sunfish, redbreast (*Lepomis auritus*)
B 184: 707 (full description, etc., in Canada)

Sunfishes (Centrarchidae)
J 30(12,I): 1901 (hybridization analysis, using adjusted hybrid index method)

Supersaturation (*see also* Oxygen, dissolved)
J 30(9): 1392 (of dissolved nitrogen in water passing through hydroelectric turbine: effect on salmon & eels)

Surgery
J 30(11): 1705 (trout & carp functional activity during recovery from)

Surveys (*see also* Populations; Trawling)
B 181 (ringed seal in E Canadian arctic)
T 342 (bottom fauna of Okanagan Valley lakes, B.C.)
385 (benthic macroinvertebrates & solid pollutants, Howe Sound, B.C.)

Survival (*see also* Disease; Lethal limits; Longevity; Mortality; Predation; Viability)
J 30(1): 1 (of sockeye salmon fry, after starvation & subsequent feeding)
(2): 323 (Na nitrilotriacetate effect on fathead minnow & bluegill)
(4): 579 (of splake progeny re parental age)
(6): 849 (effects of reduced oxygen concentrations on northern pike embryos & larvae)
(7): 975 (thermal requirements for brook trout embryos)
(8): 1147 (lime-neutralized iron hydroxide suspensions effect on fathead minnow)
(8): 1195 (freshwater fish species subjected to nuclear power plant discharge)
(11): 1667 (annual rate, L. Winnipeg whitefish, 1944–69)
(12,I): 1819 (of lobster larvae in Northumberland Strait, 1962–63, re commercial stocks)
CJG 19 (sea urchins, during commercial handling)
T 377 (lobsters in tide pond re feeding, cover, & stock density)
382 (of matched wild vs. domestic rainbow trout plantings in prairie pothole lakes; possible effectiveness of cross breeding of strains)

Suspensions; Suspended matter (*see* Filters; Matter, particulate)

Sutcliffe, William Humphrey, Jr.
J 30(6): 856 (seasonal river discharge re local landings of Atl. halibut & lobster, Gulf of St. Lawrence)
S 1781 (size distribution of particulate matter in N & S Atl. & Pac. oceans)

Sutterlin, Arnold Martin
J 30(7): 985 (chemical basis for hatchery-reared vs. wild Atl. salmon homing to hatchery vs. nearby hydroelectric dam)

Swenson, William Arthur
J 30(9): 1327 (walleye feeding periodicity, digestion, consumption, & conversion efficiency)

Swimming (*see also* Bioenergetics)
J 30(2): 223 (performance of young Atl. salmon re reduced oxygen concentration in respirometer)
(2): 325 (speed & stamina, re function of red & white fish muscle)
(3): 379 (sockeye salmon metabolic rates & swimming speeds re size & temperature)
(4): 499 (sodium pentachlorophenate effect on young sockeye performance)
(7): 1023 (endurance of steelhead trout re lactate dehydrogenases activity)
(9): 1402 (ultrasonic transmitter for sensing aquatic animals depth)
(11): 1755 (energy expenditure estimate of rainbow trout in a small mountain stream)
(12,I): 1799 (bioenergetics of sockeye during sustained)
T 341 (actograph for recording velocity of, laterally of ventrally compressed aquatic organisms of medium size)

Swordfish (*Xiphias gladius*)
J 30(8): 1251 (sampling edible muscle for total mercury analysis)

Swordtail, green (*Xiphophorus helleri*)
B 184: 10 (established in thermal basin, Banff National Park, Alta.)

Sykora, Jan Ladislar
J 30(8): 1147 (lime-neutralized iron hydroxide suspensions effect on fathead minnow survival, growth, & reproduction)

Symbolophorus veranyi (*see* Lanternfish, largescale)

Symons, Philip Edward Kyrle
J 30(5): 651 (young Atl. salmon behavior when exposed

to, or force-fed, an organophosphate insecticide)

Syndrome
J 30(12,1): 1890 (open-jaw, in chinook salmon at a hatchery)

Synonymy (*see* Nomenclature; Systematics; Taxonomy)

Syrett, Roll Frederick
J 30(6): 849 (effects of reduced oxygen concentrations on northern pike embryos & larvae)

Systematics (*see also* Genera; Keys; Speciation; Species, new; Taxonomy)
J 30(8): 1230 (dusky rockfish)
B 180 (B.C. marine fishes)
184 (Canadian freshwater fishes)

Szeto, Sui Yuzn
J 30(11): 1619 (behavior of chlorinated hydrocarbons in natural waters & their sediments)

T

Tabellaria (*see* Photosynthesis)

Tack, Peter Isaac
J 30(12,1): 1867 (salinity influence on rainbow trout protein requirements)

Tagging (*see also* Marking; Migration; Tracking)
T 349 (snow crabs, Gulf of St. Lawrence)
373 (young sablefish, NE Vancouver Is., 1972)
S 1826 (results, NW Atl. fin whales)

Takahashi, Masayuki
S 1834 (nutrient enrichment effect on algal photosynthesis, Great Central L., B.C.)

Tanks, fish (*see also* Aquaria)
J 30(9): 1389 (ammonia probe for electrometric determination of total NH_3-N in)
(10): 1594 (for recording avoidance movements of fish)
T 348 (for holding sockeye salmon fry for fin marking)

Tarr, Hugh Lewis Aubrey
J 30(12,1): 1861 (1-methyladenosine hydrolase of ochre starfish)
S 1734 (dogfish meal as poultry ration)

Taste (*see also* Flavor; Quality of fishery products)
J 30(8): 1243 (response of 3 catfish species to α-amino acids, re time after capture)
S 1795 (re chemoreception & physiology of fishes)

Tautog (*Tautoga onitis*)
J 30(3): 435 (temperature influence on energy utilization of embryonic & postlarval)

Tautogolabrus adspersus (*see* Cunner)

Taxonomy (*see also* Genera; Speciation; Subspeciation; Systematics)
J 30(3): 389 (of new marine triclad turbellarian species, *Sabussowia wilhelmii*, re possible synonymy with *Vortex warreni*, *Procerodes warreni*, & *Fovia affinis*)
(5): 665 (3 new species of *Monodiamesa* chironomids)
(7): 927 (isozymes of malate dehydrogenase on electropherograms re discrimination of sauger, walleye, & their suspected hybrids)
(12,1): 1892 (*Homoiotes palliata* copepod, taxonomic status)
S 1789 (*Alella* vs. *Anchorella* type species for Lernaeopodidae)
1802 (redescription of *Plagioporus shawi* (from *Podocotyle shawi*) trematode)
1832 (*Lecithophyllum anteroporum* synonymy with *L. botryophorum* trematode)

Taylor, Frank E.
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle & some organs of 33 inshore & offshore fish species, SE coast USA)

Taylor, Frank John Rupert
S 1818 (improved filtration & concentration techniques for microalgae electron microscopy)

Taylor, Frederick Henry Carlyle
T 360 (annulus formation in Pac. herring scales)

Teal (*see* Ducks)

Teeth
J 30(7): 1009 (dentine layering, for aging bottlenosed dolphin, Florida)
(8): 1065 (re aging W Hudson Bay white whales)
B 181 (structure & age determination, of ringed seals)

Telemetry (*see* Tracking)

Temperature, effects on fishery products (*see* Quality of fishery products)

Temperature, reactions to, or effects on organisms
J 30(3): 379 (effect on sockeye salmon metabolic rates & critical swimming speed)
(3): 401 (inheritance of thermal resistance in *Salvelinus fontinalis* × *S. namaycush* hybrids (splake))
(3): 435 (influence on energy utilization of embryonic & postlarval tautog)
(4): 485 (effects on mercury accumulation, toxicity, & metabolic rate in rainbow trout)
(4): 568 (effect on channel catfish fingerlings infected with virus)
(6): 725 (& copper ions interaction re goldfish locomotor behavior)

(6): 799 (effects on lake herring embryonic development)
(6): 831 (sublethal heat stress physiology in young steelhead trout & coho salmon)
(6): 846 (stress effect on fiddler crab cadmium uptake)
(7): 905 (effect on responses of green sunfish gonads to carp pituitary extract & hormone)
(7): 917 (thermal structure of several Okanagan Valley lakes, B.C.)
(7): 965 (thermal shock effect on vulnerability of young rainbow trout & chinook salmon to predation)
(7): 991 (effects of brief increases in, on oyster larvae)
(8): 1091 (effects of chlorinated hydrocarbons on selection, by Atl. salmon & brook trout)
(8): 1191 (effect on sockeye salmon fry growth rate & size)
(8): 1195 (heat effects on vulnerability & survival of 9 fish species re nuclear power plant effluent, Connecticut R.)
(8): 1226 (re growth requirements, & lower lethal temperatures, for smallmouth bass)
(8): 1249 (hatchery water, re malformation of Pac. salmon yolk sacs)
(8): 1253 (selection by young & adult temperature-acclimated yellow perch)
(9): 1367 (re adult sea lamprey oxygen consumption)
(11): 1697 (seasonal selection by 4 W L. Erie fishes)
S 1738 (effect on horse clam larval development)
1741 (warm body temperature of leatherback turtle taken from cold water, & rate of body cooling)
1769 (effect on sea scallop byssus attachment)
1777 (effects of cooling on goldfish nervous system electrical responses)
1834 (effect on nutrient enrichment of Great Central L., B.C.)

Temperature of natural waters (The many temperature data taken routinely are not necessarily indexed separately, but most are inferred under headings such as Lakes; Limnology; Oceanography; Thermocline; names of various lakes, rivers, oceans, and other bodies of water. *See also* Temperature, reactions to)
J 30(7): 917 (thermal structure of several Okanagan Valley lakes, B.C.)
B 182 (Gulf of St. Lawrence)
T 404 (effects on St. Margaret's Bay circulation)
S 1837 (climatic changes in NW Atl. subarctic surface waters)

Templeman, Wilfred
J 30(10): 1559 (description & distribution of *Lipogenys gilli*, from new specimens from NW Atl.)
(11): 1655 (first record of *Ichthyocodium sarcotretis* hydroid on *Sphyrion lumpi* copepod parasitic to NW Atl. redfish)
(11): 1729 (assignment of deepwater skate, *Raja richardsoni*, to the genus *Bathyraja*)
(12,I): 1831 (first records, description, distribution, & biology of deepwater skate, *Bathyraja richardsoni*, from NW Atl.)

Tench (*Tinca tinca*)
B 184: 519 (full description, etc., in Canada)

Terebratalia transversa (brachiopod)
S 1759 (description of, in B.C.)

Terebratulina (brachiopods)
S 1759 (description of B.C. *T. crossei* & *T. unguicula*; also illustration of a possible new species)

Terhune, Lorne Donald Bruce
T 347 (source water for entrainment in Alberni Inlet, B.C.)

Testes (*see also* Gonads; Hormones; Maturity; Reproduction)
J 30(7): 905 (testosterone propionate effects re temperature, on green sunfish)
(8): 1099 (testosterone derivative effect on young coho & chinook salmon, for promoting weight increase in young)
S 1731 (purification & properties of deoxyribonuclease from chum salmon)
1758 (rabbit & Atl. cod tissue malic enzymes)
1760 (testosterone & its glucuronide in thorny skate testicular blood plasma)
1814 (cadmium-induced injury in brook trout)

Testosterone (*see* Hormones; Testes)

Tetraselmis chui (*see* Chlorophyta)

Tetrazolium oxidase (*see* Enzymes)

Texture (of flesh) (*see* Firmness; Quality of fishery products)

TFM (3-trifluoromethyl-4-nitrophenol) (*see* Lampricide)

Thakore, Arvind Natverlal
J 30(4): 479 (identification of resinic & unsaturated fatty acids of kraft pulpmill effluent toxic to young coho salmon)

Thalassiosira (*see* Diatoms)

Thaleichthys (*see also* B 180: 136; 184: 306)
pacificus (*see* Eulachon)

Thames, River (England)
S 1793 (productivity & energy flow at all trophic levels)

Thawing (*see also* Drip; Freezing; Fillets; Quality of fishery products; Refrigeration)
J 30(1): 45 (effects on hexose monophosphate accumulation & related metabolic changes in sea scallop adductor muscle)
(5): 685 (Na tripolyphosphate effect on thaw-drip of fillets of various freshwater fishes)

Thermal effects (*see* Canning; Cooking; Lethal limits; Temperature, reactions to; Thermocline; etc.)

Thermocline (*see also* Limnology; Oceanography; Temperature of natural waters)
J 30(2): 320(F) (objective analysis of seasonal (e.g. Gulf of St. Lawrence))
(7): 917 (of several Okanagan Valley lakes, B.C.)
(10): 1491 (tracing vertical eddy diffusion in, by temperature, by dye, & by radon radioactive decay, in a small stratified lake)

Thiamine (*see* Vitamins)

Thiobarbituric acid
J 30(1): 63 (value, re Pac. halibut & chinook salmon quality after brine- vs. plate-freezing at sea)
(2): 305 (value, re irradiation effect on Indian mackerel quality)

Thomas, James Postles
S 1786 (distribution & activity of microorganisms in ocean water)

Thomas, Martin Lewis Hall
J 30(1): 83 (bunker C oil spill effects on intertidal & lagoonal biota, Chedabucto Bay, N.S.)

Thompson, Barbara Mary
J 30(10): 1547 (heterotrophic utilization of sucrose in an artificially enriched small lake)

Thompson, John Anthony Jeffrey
T 396 (mercury distribution in sediments & waters, Howe Sound, B.C.)

Thomson, John Arthur Collingwood
T 367 (3 computer programs for population dynamics)
375; 391 (Ekman mass transport computations & charts for N Pac. Ocean, 1971 & 1972, with notes on mean sea level & vorticity)

Threonine deaminase (*see* Enzymes)

Throat (*see* Buccal funnel)

Thunnus thynnus (*see* Tuna, bluefin)

Thymallus arcticus (*see* Grayling, Arctic)

Thyroid
J 30(3): 395 (little effect of kraft pulpmill effluent on young coho salmon)
(9): 1395(F) (^{125}I metabolism re function in yellow perch)

Thyronine
J 30(8): 1131 (binding of 3,5,3′-, to brook trout plasma proteins)

Thyroxine
J 30(8): 1131 (binding of, to brook trout plasma proteins)
(9): 1395(F) (re thyroid function in yellow perch)

Thysanoëssa (*see* Euphausiacea)

Tides
B 182 (Gulf of St. Lawrence)

Tiews, Klaus
J 30(12,2): 2333 (Thailand fishery development & management)

Tinca tinca (*see* Tench)

Tinsley, Ian James
J 30(11): 1661 (statistical approach to coho salmon fatty acid content changes produced by diet)

Tipulidae (leatherjackets; craneflies; daddy-long-legs)
CNG 95 (description)

Tolerance (*see* factors involving tolerance reactions, e.g. Environment; Oxygen, dissolved; Pollution; Salinity, reactions to; Temperature, reactions to)

Tomcod, Atlantic (*Microgadus tomcod*)
B 184: 646 (full description, etc., in Canada)

Tomkiewicz, Warren
J 30(3): 464 (first N American record of *Uteriporus vulgaris* marine triclad turbellarian)

Tomlinson, Neil
J 30(1): 63, 71, 79 (effects of brine- & plate-freezing at sea on Pac. halibut & chinook salmon quality)
(8): 1255 (Pac. halibut sexual ripening in captivity)
T 363 (frozen Pac. halibut keeping quality re prefreezing storage)
S 1821; 1822 (quality of sockeye salmon canned after chilled or partially frozen storage of fish)

Tooth (*see* Teeth)

Topminnow, blackstripe (*Fundulus notatus*)
J 30(5): 683 (first Canadian record (from SW Ont. rivers))

Topminnows (*Poeciliopsis*)
J 30(11): 1736 (karyotypes & erythrocyte sizes of *P. lucida*, *P. monacha*, & their complexes)

Townsend, Bruce Edward
J 30(7): 1026 (nitrilotriacetate discharge from 2 sewage treatment facilities, Winnipeg, Man.)

Toxicants; Toxicity (*see also* lists of subjects in headings Pesticides; Pollution; *also* Lethal limits; Survival; *also* names of chemical elements)
J 30(1): 31 (endrin toxicosis physiology in rainbow trout)

(2): 329 (flagfish short reproductive period advantageous for rapid chronic bioassays of)
(4): 479 (identification of kraft pulpmill effluent constituents toxic to young coho salmon)
(4): 485 (of mercury re temperature, as affecting rainbow trout metabolic rate)
(8): 1047 (TFM lampricide to early life stages of rainbow trout)
(10): 1565 (bleached kraft mill effluent to young Pac. salmon)
(11): 1743 (re endrin uptake & release by young channel catfish)
(12,I): 1811 (Captan fungicide, to fathead minnow, bluegill, & brook trout)
T 344 (phthalate plasticizers as environmental pollutant)
354 (of flotation media for sorting benthos)
S 1805; 1806; 1807; 1809 (elemental yellow phosphorus on marine organisms)
1854 (to fish, of effluents of 4 Canadian prairie pulpmill plants)

Tracer elements (*see* Biosynthesis; Isotopes; Photosynthesis; *also* names of chemical elements)

Trachymedusa (*see* Coelenterata)

Tracking (of underwater animals) (*see also* Echolocation)
J 30(1): 119 (hydrophone & bow-mount for, by ultrasonic telemetry)
(9): 1309 (mature Fraser R. pink salmon coastal movements ultrasonically)
(9): 1402 (including pressure-depth data)
(12,I): 1847 (ultrasonic, re American shad homing behavior)
A 295 (Atl. salmon by implanted ultrasonic transmitter)

Translating
B 183 (Russian-English dictionary for students of fisheries & aquatic biology)

Transport, mass (of waters)
T 347 (source water for entrainment, Alberni Inlet, B.C.)
375; 391 (Ekman transport computations & charts, N Pac. Ocean, 1971)
404 (in St. Margaret's Bay, N.S.)

Transportation (*see also* Packaging)
A 264 (operating instructions for refrigerated seawater systems on B.C. salmon packer vessels)
284; 285; 287 (chilling & freezing systems for Central American fishing vessels (in Spanish & English))

Trapnet
J 30(4): 587 (for capturing large & small fishes from varying depths)

Traps
T 348 (for sockeye salmon fry marking, Fulton R., Babine L., B.C.)

Trawls; Trawling (*see also* names of commercially trawled fishes; Flatfishes; Groundfishes)
J 30(2): 173 (underwater observations of tracks, re effects on bottom sediments of sea scallop beds)
T 338; 398 (1971 & 1972 B.C. groundfish fishery)
A 285 (chilling & freezing of shrimp on South American trawlers (in Spanish & English))

Traxler, Garth Stanley
S 1733 (*Vibrio anguillarum* in Atl. cod nasal abcess)

Trematoda (flukes) (*see also* Parasites)
J 30(2): 291 (*Derogenes varicus*, Brachyphallus crenatus, & *Lecithaster gibbosus* in northern sand lance intestine)
(3): 469 (additional notes to author's earlier review of trematoda utilizing polychaetes as second intermediate hosts)
(8): 1155 (new & previously described species of *Lyrodiscus* from Great Lakes fishes; *L. rupestris* n. sp.)
(12,I): 1973 (distribution of *Udonella caligorum* on *Caligus elongatus* copepod)
S 1802 (redescription of *Podocotyle shawi* as *Plagioporus shawi*)
1832 (monogenea & digenea of NE Pac. ocean perch)
A 278 (discussion re parasitism by *Entobdella soleae*)

Tresus capax (*see* Clam, horse)

Tretiak, Daniel Nicholas
J 30(2): 187 (genetics of a dehydrogenase isozyme in lake whitefish white muscle)
(7): 927 (malate dehydrogenase isozymes re taxonomic discrimination of walleye, sauger, & their suspected hybrids)

Trichoptera (caddisflies)
CNG 95 (life cycle & guide to S Vancouver Is.)
T 387 (vegetable additives to stream gravel, as feed for)

Triglycerides (*see* Acids, fatty; Lipids; Oils and fats)

Trimethylamine (*see also* Dimethylamine; Trimethylamine oxide; Quality of fish products)
J 30(8): 1246 (changes in Atl. gadoid iced & frozen fillets)
S 1844 (inapplicability as test for freshwater fishery product quality)

Trimethylamine oxide
J 30(1): 91 (formaldehyde formation from, re formaldehyde determination in fish muscle)
(8): 1205 (formaldehyde formation from, in gadoids)

Troadec, Jean Paul

J 30(12,2): 2264 (management & development of E Central Atl. fisheries)

Trout (general) (in addition to the following Trout headings, *see also* Salmonidae)
CNG 93 (hatcheries & spawning channels vs. stream protection)

Trout, brook (*Salvelinus fontinalis* (speckled trout)) (for hybrid with lake trout, *see* Splake)
J 30(5): 698 (short-term physiological indicators of sublethal effects of copper on)
(7): 975 (thermal requirements for maturation, spawning, & embryo survival)
(7): 1012 (homing, Matamek L., Que.)
(7): 1033 (estimating stream populations of premigrant, Matamek L., Que.)
(8): 1091 (effects of chlorinated hydrocarbons on temperature selection)
(8): 1131 (binding of triiodothyronine & thyroxine to plasma proteins)
(9): 1398 (effects of American eel competition & predation on, in a Quebec lake)
(10): 1586 (re postglacial colonization of Matamek R., Que.)
(11): 1705 (functional activity during recovery from anesthesia & surgery)
(12,1): 1811 (Captan fungicide toxicity to)
B 184: 208 (full description, etc., in Canada)
S 1774 (metabolism of polychlorinated biphenyls isomers in)
1814 (cadmium-induced testicular injury & androgen synthesis alteration)
1852 (re Canadian fish farming)
1856 (olfactory response to amino acids)

Trout, brown (*Salmo trutta*)
J 30(12,1): 1875 (illumination effects on behavior of wild, when exposed to black & white background)
B 184: 197 (full description, etc., in Canada (*see also* B 180: 133))

Trout, coast rainbow (*Salmo gairdnerii irideus*)
J 30(8): 1141 (lens accommodative movements re feeding behavior)

Trout, cutthroat (*Salmo clarki*)
B 184: 177 (full description, etc., in Canada (*see also* B 180: 127))
A 273 (effects of logging debris on production in streams)

Trout, Dolly Varden (*see* Dolly Varden)

Trout, hybrid (*see* Hybrids; Splake)

Trout, Kamloops (*see* Trout, rainbow)

Trout, lake (*Salvelinus namaycush*) (for hybrid with brook trout, *see* Splake)
B 184: 220 (full description, etc., in Canada (*see also* B 180: 128))
T 390 (catches during experimental purse seining, Babine L., B.C., 1972)

Trout, rainbow (*Salmo gairdneri*) (Kamloops trout) (when anadromous, *see* Trout, steelhead) (*see also* Trout, coast rainbow)
J 30(1): 31 (endrin pesticide toxicosis & resultant physiological changes)
(1): 99 (gill irrigation & pressure relationships)
(2): 229 (choice of colors of feed items)
(3): 443 (parasitic gut nematode effects on feed consumption & growth of young)
(4): 485 (temperature effects on mercury accumulation, toxicity, & metabolic rate in fingerlings)
(4): 549 (first record of nephroblastoma in Canadian hatchery stock)
(4): 571 (outbreak of redmouth disease in a S Sask. lake; correction on J 30(8): 1257)
(5): 643 (mercury uptake by caged, in S Saskatchewan R.)
(5): 685 (Na tripolyphosphate effect on thaw-drip & taste of fillets)
(6): 787 (mathematical model for risk of epibenthic prey to predation by)
(6): 841 (molybdenum in tissues, from molybdenum-containing waters)
(7): 965 (thermal shock effects on young re vulnerability to predation)
(7): 995 (chemical signals in spawning behavior)
(7): 1017 (liver changes in, when fed casein–gelatin & herring oil)
(8): 1047 (TFM lampricide toxicity to early life stages)
(8): 1141 (lens accommodative movements re feeding behavior)
(8): 1235 (masking or neutralizing muddy flavor by smoking & canning)
(9): 1293; (10): 1575 (uptake rate of methylmercuric chloride vs. mercuric chloride by various organs, principally through gills)
(9): 1301 (metabolism & biliary excretion of introduced sulfobromophthalein dye)
(10): 1553 (cadmium & copper effects on lactate oxidation by gills)
(10): 1578 (as first record of bacterial kidney disease incidence in wild B.C. salmonids)
(11): 1625 (occurrence of infectious hematopoietic necrosis virus in West Virginia)
(11): 1713 (isolation & concentration of *Myxosoma cerebralis* spores causing whirling disease in)
(11): 1740; (12,1): 1875 (influence of environmental experience on later response to black & white substrates)
(11): 1755 (energy expenditure estimate in a small mountain stream)
(12,1): 1867 (salinity influence on protein requirements of fingerlings)
B 184: 184 (full description, etc., in Canada (*see also* B 180: 128)
T 382 (growth & survival of matched plantings of wild vs. domestic, in prairie pothole lakes; possible effectiveness of cross breeding of strains)

390 (catches during experimental purse seining, Babine L., B.C., 1972)
S 1854 (re toxicity of pulpmill effluents)
1856 (olfactory response to amino acids)
A 273 (logging debris effects on production of in streams)
292 (aquaculture in Norway)

Trout, speckled (*see* Trout, brook)

Trout, steelhead (*Salmo gairdneri*) (steelhead salmon, as anadromous rainbow trout; *see also* Trout, rainbow)
J 30(1): 137 (genetic analysis of hatching time)
(6): 831 (physiological aspects of heat stress in young)
(7): 1023 (pH activity of 2 lactate dehydrogenase homotetramers from liver, & their physiological significance)

Trout-perch (*Percopsis omiscomaycus*)
J 30(6): 761 (diel habits in Ont. lakes)
(8): 1221 (age, growth, spawning, & fecundity of SE L. Michigan)
B 184: 678 (full description, etc., in Canada)

Truscott, Beryl
S 1768 (corticosteroids in South American lungfish plasma)

Trust, Trevor John
J 30(2): 269 (ethylene oxide for formulated & pelleted fish feed sterilization)

Tsolum River, B.C.
T 364; 405 (evaluation of gravel incubators for pink salmon fry & evaluation at adult stage)

Tsuyuki, Hiroshi
J 30(7): 1023 (pH activity of 2 lactate dehydrogenase homotetramers from steelhead trout livers, & their physiological significance)

Tubb, Richard Arnold
J 30(11): 1697 (temperatures selected seasonally by 4 W L. Erie fishes)

Tubifex (*see* Oligochaeta)

Tubificidae (*see also* Oligochaeta)
S 1845 (of NE USA)

Tucker, Don
J 30(8): 1243 (decline of olfactory & gustatory responses by 3 catfish to α-amino acids, re time after capture)

Tucker, James Henry
J 30(7): 975 (thermal requirements for brook trout maturation, spawning, & embryo survival)

Tull, Charles Eric
S 1794 (mortality of thick-billed murres in W Greenland salmon fishery)

Tumor (*see also* Disease)
J 30(4): 549 (spontaneous nephroblastoma in a rainbow trout)

Tuna, bluefin (*Thunnus thynnus*)
J 30(7): 1031 (genic polymorphism of tetrazolium oxidase in, from France & NW Atl.)

Tuna, skipjack (*Euthynnus pelamis*) (*Katsuwonus pelamis*)
J 30(2): 293 (mercury concentration in, off California)
A 287 (brine-spray freezing system for Central American small seiners (in Spanish & English))

Tuna, yellowfin (*Thunnus albacares*)
A 287 (brine-spray freezing system for Central American small seiners (in Spanish & English))

Tunny, little (*Euthynnus alletteratus*)
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle, offshore SE coast USA)

Turbellaria (*see also* Parasites)
J 30(3): 389 (new marine triclad species, *Sabussowia wilhelmii*, from P.E.I.; key to genus; taxonomy re possible synonymy with *Vortex warreni*, *Procerodes warreni*, & *Fovia affinis*)
(3): 464 (first record of *Uteriporis vulgaris* marine triclad in N America)

Turbot (Pacific) (*see* Flounder, arrowtooth)

Turner, Gary Edward
J 30(6): 779 (recent Atl. salmon stock composition changes, Miramichi R., N.B.)

Tursiops truncata (*see* Dolphin, bottlenosed)

Turtle, leatherback (*Dermochelys coriacea*)
S 1741 (warm body temperature from cold water)

Tyler, Albert Vincent
J 30(9): 1374 (winter flounder intertidal feeding & stomach contents, Bay of Fundy)
T 361 (alimentary tract morphology of various Atl. fishes re feed habits)
397 (are species association coefficients really necessary?)
402 (method for compression of species association data)

U

Uca pugilator (*see* Crab, fiddler)

Udonella caligorum (*see* Trematoda)

Ullrey, Duane Earl

J 30(12,I): 1867 (salinity influence on rainbow trout protein requirements)

Ultrasonics (*see also* Echolocation)
J 30(1): 119 (hydrophone & bow-mount for tracking fish telemetrically)
(9): 1309 (tracking Fraser R. mature pink salmon coastal movements)
(9): 1402 (for tracking aquatic animals, including pressure–depth data)
(12,I): 1847 (re tracking homing American shad)
T 346 (mathematics & instrumentation for detection of parasites in fish)
350 (high-frequency sonar for mapping euphausiid concentrations in sea)
A 295 (tracking Atl. salmon by implanted ultrasonic transmitter)

Umbra limi (*see* Mudminnow, central)

Ungava, Que.
J 30(2): 299 (round whitefish age, growth, & maturity, Leaf R.)

Uria lomvia (*see* Murres, thick-billed)

Urophycis tenuis (*see* Hake, white)

Uteriporus vulgaris (*see* Turbellaria)

Uterus
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content, in cownose ray, SE coast USA)

Uthe, John Frederick
J 30(5): 643 (mercury uptake by caged rainbow trout, S Saskatchewan R.)
S 1836 (clearance rate of methylmercury from northern pike tissues)

Utilization (*see* Economics; Fisheries; Management; *also* types of products (e.g. as listed in heading Fish processing); names of commercial fishes, marine mammals, shellfishes, seaweeds, etc.)
B 180 (many species of B.C. marine fishes)
184 (many species of Canadian freshwater fishes)
A 294 (ringed seal, by Eskimos)

V

Vacuum closer (of canning equipment)
T 369 (safety modification of hand-operated)

Vaisey, Florence Marion
S 1765 (processing effects on smoked goldeye texture)

Valdez-Zamudio, Francisco
J 30(12,2): 2242(S) (effect of regulations on Peruvian fish industry)

Valenciennellus tripunctulatus (a mesopelagic gonostomatid fish; no common name as yet)
J 30(1): 134 (length of a specimen taken in or off Gulf of Maine)

Vallentyne, John Reuben Way
A 275 (review of an article on ecological effects of phosphate detergent pollution)
277 (the algal bowl — a Faustian view of eutrophication)
288 (freshwater nutrients & eutrophication — present & future)

Vancouver Island, B.C. (*see also* Alberni Inlet; Great Central Lake)
CNG 95 (guide to stream insects of southern)
S 1838 (brief description & distribution of various decapods of SE coast)

Van der Veen, Egbert
J 30(2): 283 (apparatus for stimulating olfactory activity in fishes)

Van Hyning, Jack Mattson
J 30(11): 1738 (identification of microfungal encrustation on snow crab carapace)

Vascular system (*see* Blood; Heart)

Vegetation (*see also* Flora, freshwater; Seaweeds)
T 387 (streamside, re management of salmonid streams)
S 1793 (riverside, re productivity of R. Thames, Eng.)

Venericardia borealis (*see* Heart shell, northern)

Ventilation (*see* Gills; Respiration)

Venugopal, Vazhiyil
J 30(2): 305 (extending shelf life of iced Indian mackerel by irradiation)

Venus mercenaria (*see* Quahog, northern)

Vermeer, Kees
S 1745; 1801 (mercury content of muscle & liver of Canadian prairie ducks)

Vertebrae (*see* Bone)

Vessels; Boats
A 264 (operating instructions for refrigerated seawater systems on B.C. salmon packers)
284; 285; 287 (chilling & refrigeration equipment & operation for Central American fishery (in Spanish & English))

Viability (*see also* Survival)
J 30(5): 631 (*Clostridium botulinum* during fish smoking procedures)

Vibrio anguillarum

S 1733 (isolated from Atl. cod nasal abcess)

Victoria Island, western Canadian arctic
S 1843 (observations of 48 bird species in Holman region of, & of Banks Is., 1971)
A 294 (management of ringed seal for Eskimo utilization)

Viperfish (*Chauliodus sloani*)
J 30(1): 134 (lengths of 5 specimens taken in or off Gulf of Maine)

Viruses (*see also* Disease)
J 30(4): 568 (temperature effect on mortality of young channel catfish experimentally infected with channel catfish virus)
(7): 913 (susceptibility of fibroblast-like cell line from Atl. salmon parr tissues to infectious pancreatic necrosis virus (IPN), infectious hematopoietic necrosis virus (IHN), & myxovirus of bluegill)
(9): 1383 (determining sample sizes to detect IPN in fish populations)
(11): 1625 (first isolation of IHNV virus in E USA, in rainbow trout)
(11): 1641 (channel catfish herpesvirus & antibody quantitation with brown bullhead cultured cells)

Vision (*see also* Eye; Light, reactions to)
J 30(2): 229 (illumination intensity effect on rainbow trout choice of color of trout eggs as feed)
(6): 787 (mathematics of role of, in rainbow trout predation)
(7): 1021 (one-way glass for assessing fish visual discrimination of feed)
(11): 1740; (12,1): 1875 (environmental experience influence on trout response to black & white substrates)

Vitamins
J 30(2): 215 (B_{12} seasonal cycle in Strait of Georgia, B.C.)
(6): 831 (C depletion in coho salmon from sublethal heat stress)

Vladykov, Vadim Dmitrovich
J 30(2): 205 (new nonparasitic lamprey species, Pac. brook lamprey, *Lampetra pacifica*, from Oregon & Washington)
(5): 689 (age re macrophthalmia development in American eel)

Vocalization
J 30(10): 1592 (by ringed seal)
S 1851 (short pulse length audio frequency, by minke whale)

Vortex warreni (*see* Turbellaria)

Vorticity
T 391 (note on N Pac. Ocean, 1972)

Vulnerability (*see also* Predation; Pollution)
J 30(8): 1195 (of 9 fish species to nuclear power plant effluent, Connecticut R.)

W

Waldichuk, Michael
MSP 19 (brochure on activities of Pacific Environment Institute, West Vancouver, B.C.)

Waldron, Kenneth David
J 30(11): 1749 (portable wire-speed indicator for plankton nets)

Wales, Joseph Howe
J 30(7): 1017 (liver changes in rainbow trout fed casein–gelatin & herring oil)

Walleye (*Stizostedion vitreum* (*vitreum*)) (yellow walleye)
J 30(5): 601 (re predation by sea lamprey)
(5): 685 (Na tripolyphosphate effect on thaw-drip & taste of fillets)
(6): 817 (direct estimates of gillnet selectivity to)
(7): 927 (electropherograms of malate dehydrogenase isozymes re taxonomic discrimination from sauger & their suspected hybrids)
(9): 1327 (feeding periodicity, digestion, consumption, & conversion efficiency)
B 184: 767 (full description, etc., in Canada)

Walne, Peter Richard
J 30(12,1): 1825 (growth rates, nitrogen & carbohydrate contents of young butter clams fed 3 species of algae)

Walter, Gilbert Gustav
J 30(7): 939 (delay-differential equation models for fisheries population biomass)

Walton, Antony
J 30(2): 261 (dispersed & particulate petroleum residues, Gulf of St. Lawrence)

Walton, Clement James
J 30(3): 471 (mercury, DDT, & PCB residues in Gulf of Maine & Bay of Fundy harbour seals)

Wang, Richard
S 1743 (amperometric measurement of hydrogen evolution in green alga *Chlamydomonas moewusii*)

Ward, Frederick James
J 30(5): 708 (liquid scintillation vs. Geiger–Müller estimates of algal primary productivity in situ)

Ward, James Vernon
J 30(6): 841 (molybdenum in rainbow trout & kokanee tissues from molybdenum-containing waters)

Ware, Daniel Morris

J 30(6): 787 (mathematical model for risk of epibenthic prey to predation by rainbow trout)

Warren, Charles Gerald
T 369 (safety modification of vacuum closer canning machine)

Warren, Richard Antony John
S 1819 (an unusual pyrimidine from a bacteriophage deoxyribonucleic acid)
1849 (polyamines of *Pseudomonas acidovorans*)

Waste disposal (*see* Fish processing wastes; Pollution)

Wastewater (*see* Fish processing wastes)

Water content (*see also* Composition, chemical; Drip)
J 30(1): 41(F) (of *Carcinus maenas* shore crab hepatopancreas during molting cycle & ovary during ovogenesis)
T 365 (Nfld. herring, re fat content & various biological factors)

Waterfowl (*see* Birds; Ducks; Murres)

Watersheds
B 184 (distribution of Canadian freshwater fishes, re North American)

Watson, Jeffrey
T 349 (recaptures & movements of snow crabs, Gulf of St. Lawrence)

Waxes
S 1787 (chromatographic separation of isomeric isovalerate & isoamyl esters)

Waxman, Jeffrey Bruce
J 30(6): 725 (interaction of temperature & copper ions re goldfish locomotor behavior)

Weather
J 30(9): 1363 (re probable cause of 1972 red tide in Gulf of Maine)

Webb, Paul Walters
J 30(4): 499 (sodium pentachlorophenate effects on young sockeye salmon)

Weber, Laverne John
J 30(9): 1301 (metabolism & biliary excretion of an introduced dye by rainbow trout)

Wedermeyer, Gary A.
J 30(2): 296 (nutritional factors in biochemical pathology of coho salmon corynebacterial kidney disease)
(6): 831 (sublethal heat stress physiology in young steelhead trout & coho salmon)
(9): 1383 (computer program for sample sizes to determine disease incidence of fish populations)

Weight (*see also* Growth; Length; Size)
J 30(2): 235 (re age of Pac. ocean perch, NE Pac.)
(3): 409(linear regressions in weight-length data for fishes)
(5): 601 (of freshwater fishes re selection by sea lamprey as prey)
(8): 1099 (testosterone derivative for promoting increase of, in young chinook & coho salmon)
(9): 1287 (metallic contaminants in bluefish & blue antimora white muscle re total body weight)
(9): 1367 (sea lamprey oxygen consumption re body weight)
B 180 (maximum recorded, or average, of most species of B.C. marine fishes)
184 (maximum recorded, or average, of most species of Canadian freshwater fishes)
T 339 (re length & age of SW Nfld. winter herring, 1965–66 to 1970–71)
353; 392 (re age of Atl. salmon in Nfld.–Labrador commercial catches)
371 (B.C. pink salmon in catches & escapements in recent years)

Weir, John Robert
R 1971–1972 (foreword to FRB Biennial Review)
MSP 20 (foreword to résumé of FRB history (English & French))

Weiss, Herbert Vinik
J 30(2): 293 (mercury concentration in sea water & in a pelagic feed chain)

Wells, Barbara
J 30(9): 1374 (winter flounder intertidal feeding & stomach contents, Bay of Fundy)

Wells, LaRue
J 30(8): 1221 (SE L. Michigan trout-perch age, growth, spawning season, & fecundity)

Wells, Peter Geoffrey
T 349 (recaptures & movements of snow crabs, Gulf of St. Lawrence)

Wenner, Charles Antony
J 30(11): 1752 (occurrence of American eels in waters over E North American continental shelf)

Westrheim, Sigurd Jergen
J 30(2): 235 (Pac. ocean perch age & growth in NE Pac.)
(8): 1230 (dusky rockfish systematics, morphometry, distribution, & abundance)
T 345 (catches during FRB experimental groundfish cruise off SW Vancouver Is., Sept. 1972)
A 276 (review of book on systematics of rockfishes)

Whale, Atlantic bottle-nosed (*Hyperoodon ampullatus*)
J 30(8): 1111 (sightings & distribution, NW Atl.)

Whale, beluga (*see* Whale, white)

Whale, blue (*Balaenoptera musculus*)
S 1752 (ICNAF 1963 sightings, N Atl.)
A 293 (recognition by method of blowing)
296 (review of book on)

Whale, bottle-nosed (*Hyperoodon rostratus*)
S 1752 (ICNAF 1963 sightings, N Atl.)

Whale, Bryde's (*Balaenoptera edeni*)
A 293 (recognition of)

Whale, fin (*Balaenoptera physalus*)
S 1752 (ICNAF 1963 sightings, N Atl.)
1826 (stocks assessment, off Canada Atl. coast)
A 293 (general biology of)

Whale, humpback (*Megaptera nodosa*)
S 1752 (ICNAF 1963 sightings, N Atl.)

Whale, killer (*Orcinus orca*) (actually a dolphin)
S 1752 (ICNAF 1963 sightings, N Atl.)
A 291 (protection in B.C. waters; popularity for aquaria)

Whale, little piked (*see* Whale, minke)

Whale, minke (*Balaenoptera acutorostrata*) (little piked whale)
S 1752 (ICNAF 1963 sightings, N Atl.)
1851 (short pulse length audio frequency sounds from)
A 293 (general biology)

Whale, minke (*Balaenoptera bonaerensis*) (little piked whale)
A 293 (mention of, re preceding minke whale species)

Whale, northern pilot (*Globicephala melaena*)
J 30(8): 1111 (NW Atl. sightings & distribution)
S 1752 (ICNAF 1963 sightings, N Atl.)

Whale, pilot (*see* Whale, northern pilot; Whales)

Whale, sei (*Balaenoptera borealis*)
S 1825 (catches & biological data, N.S.)
A 293 (general biology)

Whale, sperm (*Physeter catodon*)
S 1752 (ICNAF 1963 sightings, N Atl.)

Whale, white (*Delphinapterus leucas*) (beluga)
J 30(8): 1065 (biology, W Hudson Bay)
(8): 1111 (distribution, sightings, NW Atl.)
(11): 1733 (DDT residues in, Mackenzie R. delta, N.W.T.)
S 1824 (significance of accessory corpora lutea in)
A 291 (brief mention of relict population in Saguenay area, Que.)

Whales (*see also* above individual species)
J 30(8): 1111 (unidentified *Globicephala* species, NW Atl.)
S 1752 (ICNAF 1963 sightings of unidentified, N Atl.)
A 293 (brief general biology & identification of finner)
291 (brief account of habitat & status of Canadian coastal)

Wheat
T 387 (zoobenthos response to addition of grains to stream substrates)

Whirling disease (*see* Disease)

White, David Bruce
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle & some organs of 33 inshore & offshore fish species, SE coast USA)

Whitefish, Atlantic (*Coregonus canadensis*)
B 184: 281 (full description, etc., in Canada)

Whitefish, broad (*Coregonus nasus*)
J 30(4): 554 (notes on Colville R., Alaska)
B 184: 278 (full description, etc., in Canada)

Whitefish, humpback (*Coregonus pidschian*)
J 30(4): 554 (notes on Colville R., Alaska)

Whitefish, lake (*Coregonus clupeaformis*)
J 30(2): 187 (genetics of glycerol-3-phosphate dehydrogenase isozymes in white muscle)
(5): 601 (size re predation by sea lamprey)
(5): 685 (Na tripolyphosphate effect on thaw-drip & taste of fillets)
(11): 1667 (changes in L. Winnipeg population, 1944–69)
B 184: 269 (full description, etc., in Canada)
T 383 (experimental cropping of N.W.T. lakes: plans & simulation results)
390 (taken during FRB experimental purse seining, Babine L., B.C., 1972)
S 1856 (olfactory response to amino acids)

Whitefish, mountain (*Prosopium williamsoni*)
B 184: 291 (full description, etc., in Canada)
T 390 (taken during FRB experimental purse seining, Babine L., B.C., 1972)

Whitefish, pygmy (*Prosopium coulteri*)
B 184: 282 (full description, etc., in Canada)
T 390 (taken during FRB experimental purse seining, Babine L., B.C., 1972)

Whitefish, round (*Prosopium cylindraceum*)
J 30(2): 299 (age, growth, & maturity, Leaf R., Ungava, Que.)
(4): 554 (notes on, Colville R., Alaska)
B 184: 286 (full description, etc., in Canada)

Whyte, John Nimmo Crosby
S 1750; 1820 (chemical & physical studies of *Rhodymenia pertusa* glucans)

1778 (chromatography & mass spectrometry of methylated alditol acetates)
1804 (a glucan isolated from *Clostridium botulinum*)

Wickett, William Percy
CNG 94 (effects on NW Pac. fisheries of changing ocean environment)
T 375; 391 (Ekman mass transport computations & charts for N Pac. Ocean, 1971 & 1972, with notes on mean sea level & vorticity)
381 (physical factors in B.C. coast waters re herring population sizes)
395 (unusually strong current in Hecate Strait, B.C., Sept. 1968)

Wiebe, William John
S 1786 (distribution & activity of microorganisms in ocean water)

Wilder, Donald George
T 377 (lobster survival & condition in tide pond re feeding, cover, & stock density)

Wildish, David John
T 341 (actograph for recording locomotor activity of laterally or ventrally compressed aquatic organisms of medium size)
S 1774 (metabolism of polychlorinated biphenyl isomers in pigeon, rat, & brook trout)

Wilimovsky, Norman Joseph
J 30(12,2): 1948 (contemporary methods and future trends in fishery management and development)

Williams, George Charles
J 30(11): 1743 (endrin uptake & release by young channel catfish)

Williams, Peter Montague
J 30(2): 293 (mercury concentration in sea water & in a pelagic feed chain)

Williscroft, Stuart Neil
J 30(7): 1023 (pH activity of 2 lactate dehydrogenase homotetramers from steelhead trout livers, & their physiological significance)

Wilson, Nadine
S 1841 (isolation & amino-acid sequence of chinook salmon neurohypophyseal hormones)
1842 (oxytocic activity changes of hypophysis during chinook salmon sexual maturation)

Wind effects (*see also* Storms)
J 30(1): 53 (balanced vs. geostrophic stress re Hudson Bay waters)
T 380 (energy changes re wind mixing in upper ocean)
404 (on waters & circulation in St. Margaret's Bay, N.S.)
S 1857 (on upper water layer, Pac. Ocean Station P)
1858 (re a time-dependent model of the upper ocean)

Windell, John Thomas
J 30(2): 201 (simulated meal size effect on secretory rates of gastric enzymes in bluegill)

Windom, Herbert Lynn
J 30(2): 275 (As, Cd, Cu, Hg, & Zn content of muscle & some organs, 33 inshore & offshore fish species, SE coast USA)

Windowpane (*Scophthalmus aquosus*)
B 184: 11 (observed in Canadian fresh or brackish waters)

Wings (*see* Ducks)

Winnipeg, Lake, Man.
J 30(11): 1667 (lake whitefish population changes, 1944-69)

Winnipeg, Man.
J 30(7): 1026 (nitrilotriacetate discharge from 2 sewage treatment systems)

Winters, George Henry
J 30(6): 860 (first record of alewife and probable spawning in E Nfld. area)
T 365 (fat & water content of Nfld. herring re spawning, size, sex, season, etc.)

Witch (*see* Flounder, winter; Flounder, witch)

Withey, Kathryn Gail
J 30(12,1): 1898 (reciprocal photoperiod regime effect on standard rate of Atl. salmon oxygen consumption)

Wobeser, Gary Arthur
J 30(4): 571 (rainbow trout redmouth disease outbreak in a S Sask. lake; correction on J 30(8): 1257)
(5): 681 (columnaris disease outbreak in white suckers of a Sask. lake)

Wojtowicz, Maria Barbara
S 1737 (carbohydrases of sea scallop digestive gland & crystalline style)
1796 (isolation & properties of lobster digestive amylase)

Wolf, Ken
J 30(11): 1625 (isolation & identification of infectious hematopoietic necrosis fish virus in E North America)

Wolffish, Atlantic (*Anarhichas lupus*)
J 30(8): 1205 (lack of dimethylamine or formaldehyde formation in, re salt-extractable protein formation in muscle)

Wood, Alex James

J 30(2): 269 (ethylene oxide for sterilization of formulated & pelleted fish feeds)

Wood Lake, B.C.
J 30(4): 519 (crustacean plankton re eutrophication)
(7): 917 (thermal structure re nearby lakes in Okanagan Valley, B.C.)
T 342 (survey of bottom fauna)

Woodall, William Lloyd
T 384 (experimental cropping of N.W.T. lakes: physical & chemical features of the lakes)

Woods, Robert John
J 30(11): 1705 (trout & carp functional activity during recovery from anesthesia & surgery)

Worthington, Robert Earl
J 30(10): 1604 (variance of channel catfish fatty acids re diet)

Wounds (*see* Injury)

X

Xiphias gladius (*see* Swordfish)

Xiphophorus helleri (*see* Swordtail, green)

Y

Yamamoto, Masanobu
S 1730 (nonspecific acid phosphatase in *Enteromorpha linza* marine alga)
1731 (purification & properties of chum salmon testes deoxyribonuclease)

Yamazaki, Fumio
S 1732 (gonadotropin preparation from chinook salmon pituitary glands)

Yasutake, William Toshio
J 30(7): 994 (*Scolecobasidium humicola* fungal pathogen of coho salmon)
(12,I): 1890 (chinook salmon open-jaw syndrome at a hatchery)

Yield (*see also* Catches; Economics; Fisheries; Management)
J 30(4): 509 (optimum economic of a fishery, given a variable output price)
(7): 939 (delay-differential equation models for fishery, from population biomass)
(7): 998 (simple dynamic pool vs. surplus production models for fishery)
(9): 1275 (mechanisms thwarting maintenance of peak-period, from stocks of Pac. salmons & other fishes)

Yoldia limatula (*see* Clams (marine))

York, Roberta K.
S 1765 (processing effects on smoked goldeye texture)

Yuen, Kenneth Buck
J 30(1): 53 (balanced vs. geostropic wind-stress for Hudson Bay)

Yukon
B 184 (freshwater fishes of)

Yukon River, Yukon Territory & Alaska
J 30(3): 457 (inconnu age & growth in Alaska)

Z

Zabik, Mary Ellen
J 30(5): 702 (cooking effects on residues of chlorinated hydrocarbons in L. Michigan coho & chinook salmon flesh)

Zackman, Nizam
J 30(12,2): 2335 (Indonesian fisheries development & management)

Zeitoun, Ibrahim Hanafi
J 30(12,I): 1867 (salinity influence on rainbow trout protein requirements)

Zinc derivatives
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The slender eelblenny, *Lumpenus fabricii*, a southern record in Nova Scotia waters **A. Rojo** 1888–1889

Open-jaw syndrome in chinook salmon (*Oncorhynchus tshawytscha*) at a hatchery **D. E. Crouch, W. T. Yasutake, and R. R. Rucker** 1890–1892

Taxonomic status of *Homoiotes palliata* Wilson, 1905 (Copepoda: Caligidae) **Z. Kabata** 1892–1893

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Extended analysis of hybridization in sunfishes (Centrarchidae) using an adjusted hybrid index method **M. H. A. Keenleyside, R. K. Misra, and D. W. Bateson**

Food, feeding, and condition of lobsters, *Homarus americanus*, throughout the seasonal cycle in Bonavista Bay, Newfoundland **G. P. Ennis** 1905–1909

First records of the Chinese mitten crab, *Eriocheir sinensis*, (Crustacea: Brachyura) from North America **S. J. Nepszy and J. H. Leach** 1909–1910

Hirundichthys rondeleti, *Cookeolus boops*, *Priacanthus arenatus*, *Seriola dumerili*, four species new to the Canadian Atlantic ichthyofauna **K. T. MacKay and J. Gilhen** 1911–1913

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(Issue 12, Part 2, is a special issue of the proceedings of a Technical Conference on Fishery Management and Development by the Food and Agriculture Organization of the United Nations, held in Vancouver, B.C., February 13–23, 1973. Contains its own index and is partially indexed herein.)

BULLETINS OF THE FISHERIES RESEARCH BOARD OF CANADA

Abbreviation: B

180. HART, J. L. 1973. Pacific fishes of Canada. ix + 740 p. ($8.00) [Listed and indexed in Miscellaneous Special Publication No. 18; also includes its own index]

181. SMITH, T. G. 1973. Population dynamics of the ringed seal in the Canadian eastern arctic. viii + 65 p. ($2.50) [Indexed herein]

182. LORING, D. H., AND D. J. G. NOTA. 1973. Morphology and sediments of the Gulf of St. Lawrence. xiv + 147 p. ($5.00) [Indexed herein]

183. RICKER, W. E. 1973. Russian-English dictionary for students of fisheries and aquatic biology. xi + 428 p. ($7.00) [Indexed in part herein; also includes its own index]

184. SCOTT, W. B., AND E. J. CROSSMAN. 1973. Freshwater fishes of Canada. xiii + 966 p. ($9.75) [Indexed herein; also includes its own index]

(Bulletins are for sale at Information Canada and its bookstores throughout Canada)

ANNUAL REPORT

Abbreviation: AR

Annual Report 1972/Rapport annuel 1972. Fisheries Research Board of Canada/ Office des recherches sur les pêcheries du Canada. 52 p. (10)

REVIEW

Abbreviation: R

Review of the Fisheries Research Board of Canada 1971–1972. 230 p. (10)

CIRCULARS
OF THE FISHERIES RESEARCH BOARD OF CANADA

Atlantic Regional Office, Halifax, N. S. (8)

Abbreviation: CAR

2. JANGAARD, P. M. [compiler and editor] . 1972. Effects of elemental phosphorus on marine life. (Collection of 28 papers resulting from the 1969 pollution crisis, Placentia Bay, Newfoundland.) 313 p.

Biological Station, St. John's, Nfld. (9)

Abbreviation: CJG

19. MILLER, R. J., AND C. A. BISHOP. 1973. A sea urchin fishery for Atlantic Canada. 9 p.
20. SANDEMAN, E. J. 1973. The redfish fishery of the Gulf of St. Lawrence biological considerations – past, present, and future? 19 p.

Pacific Biological Station, Nanaimo, B. C. (1)

Abbreviation: CNG

93. NARVER, D. W. 1973. Are hatcheries and spawning channels alternatives to stream protection? 11 p.
94. WICKETT, W. P. 1973. Our changing ocean environment. 23 p.
95. MOUNCE, D. E. 1973. An introductory guide to stream insects of southern Vancouver Island. 39 p.

(For full addresses see p. 2541)

TECHNICAL REPORTS OF THE FISHERIES RESEARCH BOARD OF CANADA

Abbreviation: T

(NOTE: The numeral in parentheses at the end of each reference indicates the name of the Fisheries Research Board of Canada establishment from which the information or the Report originated and to which request for a copy can be made. See page 2541 for addresses corresponding to these numerals.)

304. NURSALL, J. R. AND D. BUCHWALD. 1972. Life history of the Arctic lamprey (*Lethenteron japonicum*) [Martens] of Great Slave Lake, N.W.T. 28 p. (4)

337. KLING, H. J., AND S. K. HOLMGREN. 1972. Species composition and seasonal distribution of phytoplankton in the Experimental Lakes Area, northwestern Ontario. 56 p. (4)

338. FORRESTER, C. R., AND J. E. SMITH. 1972. The British Columbia groundfish fishery in 1971, some aspects of its investigation and related fisheries. 67 p. (1)

339. HODDER, V. M., L. S. PARSONS, C. I. BARBOUR, AND R. CHAULK. 1972. Length, age and weight of herring in the southwest Newfoundland winter fishery from 1965–66 to 1970–71. 113 p. (9)

340. CHILTON, D. E., AND J. E. SMITH. 1972. Length and age composition of rock sole (*Lepidopsetta bilineata*) in western Canadian waters. 3. Commercial landings from the Butterworth–Warrior area of Hecate Strait, 1964–71. 19 p. (1)

341. WILDISH, D. J., AND S. M. POLAR. 1972. An actograph for laterally or ventrally compressed aquatic organisms of medium size. 20 p. (6)

342 SÆTHER, O. A., AND M. P. MCLEAN. 1972. A survey of the bottom fauna in Wood, Kalamalka and Skaha lakes in the Okanagan Valley, British Columbia. 27 p. (4)

343. CLAGGETT, F. G. 1972. Clarification of fish processing plant effluents by chemical treatment and air flotation. 19 p. (2)

344. ZITKO, V. 1972. Determination, toxicity, and environmental levels of phthalate plasticizers. 37 p. (6)

345. WESTRHEIM, S. J., D. DAVENPORT, W. R. HARLING, AND M. S. SMITH. 1972. *G. B. Reed* Groundfish Cruise No. 72-3, September 9-28, 1972. 28 p. (1)

346. FREESE, M. 1973. The automatic detection of parasites by the ultrasonic echo method. 81 p. (4)

347. PARKER, R. R., J. SIBERT, AND L. D. B. TERHUNE. 1972. Source water for entrainment in Alberni Inlet, B. C. 29 p. (1)

348 COBURN, A. S., AND J. MCDONALD. 1972. The trapping and marking of sockeye salmon fry (*Oncorhynchus nerka*) at Fulton River, Babine Lake, B.C., (1966–1968). 54 p. (1)

349. WATSON, J., AND P. G. WELLS. 1972. Recaptures and movements of tagged snow crabs (*Chionocetes opilio*) in 1970 from the Gulf of St. Lawrence. 12 p. (6)

350. SAMEOTO, D. D. 1972. The feasibility of mapping euphausiid concentrations in the Gulf of St. Lawrence using high frequency sonar. 30 p. (7)

351. GLOOSCHENKO, W. A., H. F. NICHOLSON, AND J. E. MOORE. 1973. Surface distribution of total chlorophyll *a* in lakes Ontario and Erie, 1970. 25 p. (4)

352. FREEMAN, K. 1972. The spatial and seasonal distribution of coliforms in Bedford Basin. ix + 27 p. (7)

353. LEAR, W. H., AND A. W. MAY. 1972. Size and age composition of the Newfoundland and Labrador commercial salmon catch. 70 p. (9)

354. FLANNAGAN, J. F. 1973. Sorting benthos using floatation media. 14 p. (4)

355. HOURSTON, A. S., AND F. W. NASH. 1972. Millions of fish at age (catch, spawners and immatures) in British Columbia herring populations, 1950–51 to 1969–70. 136 p. (1)

356. HOURSTON, A. S., AND D. N. OUTRAM. 1972. Millions of herring spawners by age in British Columbia waters, 1951–1970. 90 p. (1)

357. HOURSTON, A. S., AND F. W. NASH. 1972. Millions of fish at age in British Columbia adult herring populations, 1950–51 to 1969–70. 124 p. (1)

358. HOURSTON, A. S., F. W. NASH, AND R. S. K. ISAACSON. 1972. Age composition of British Columbia herring catches 1950–1951 to 1969–70. 216 p. (1)

359. HOURSTON, A. S., D. N. OUTRAM, AND F. W. NASH. 1972. Millions of eggs and miles of spawn in British Columbia herring spawnings, 1951 to 1970 (revised, 1972). 154 p., with enclosed errata sheet. (1)

360. TAYLOR, F. H. C., AND M. BURKE. 1972. Annulus formation in Pacific herring scales. 35 p. (1)

361. TYLER, A. V. 1973. Alimentary tract morphology of selected north Atlantic fishes in relation to food habits. 23 p. (6)

362. SCARRATT, D. J., AND S. M. POLAR. 1972. An odometer for use with Irish moss rakes. 7 p. (6)

363. TOMLINSON, N., S. E. GEIGER, D. E. KRAMER, AND S. W. ROACH. 1973. The keeping quality of frozen halibut in relation to prefreezing storage. 21 p. (2)

364. BAMS, R. A. 1973. Evaluation of gravel incubators

on first "hatchery" generation Tsolum River pink salmon, 1970–72. Part I: Evaluation at the fry stage. 18 p. (1)

365. HODDER, V. M., L. S. PARSONS, G. H. WINTERS, AND K. SPENCER. 1973. Fat and water content of herring in Newfoundland and adjacent waters, 1966–71. 49 p. (9)
366. CLAGGETT, F. G. 1973. Secondary treatment of salmon canning wastewater by rotating biological contactor. (RBC). 15 p. (2)
367. PIENAAR, L. V., AND J. A. THOMSON. 1973. Three programs used in population dynamics WVONB – ALOMA – BHYLD (FORTRAN 1130). 33 p. (1)
368. GRUCHY, I. M., AND D. E. MCALLISTER. 1972. A bibliography of the smelt family, Osmeridae. 104 p. (10)
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INTERPRETIVE ARTICLES OF THE FISHERIES RESEARCH BOARD OF CANADA

Abbreviation: A

(NOTE: The numeral in parentheses at the end of each reference indicates the name of the Fisheries Research Board of Canada establishment from which the information or the Report originated and to which request for a copy can be made. See page 2541 for addresses corresponding to these numerals.)

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273. NARVER, D. W. 1970. Effects of logging debris on fish production. Proc. Symp. Forest Land Uses and Stream Environment, Oregon State Univ., Corvallis, Ore., Oct. 19–21, 1970. 101–111. (1)

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276. WESTRHEIM, S. J. 1972. Review of "Systematics, variation, distribution, and biology of rockfishes of the subgenus *Sebastomus* (Pisces, Scorpaenidae, *Sebastes*)," by Lo-Chai Chen. Copeia 1972(1): 195–196. (1)

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287. ROACH, S. W. 1971. Sistema de congelación por rocío de salmuera para pequeños atuneros de cerco con base de operación en Centro América (A brine spray freezing system for small tuna seiners based in Central America). Proyecto Regional de Desarrollo Pesquero en Centro América (San Salvador). Bol. Téc. 5(4): 39 p. (in Spanish and English) (2)

288. VALLENTYNE, J. R. 1972. Nutrients and eutrophication – the limiting-nutrient controversy. Panel contrib. from Proc. Am. Soc. Limnol. Oceanog. Spec. Symp. Vol. 1: 306–310. (4)

289. KETCHEN, K. S. 1972. Biological considerations of fisheries in Canadian coastal zones. Coastal Zone Proc. Semin. Bedford Inst. Oceanog., Dartmouth, N. S., Mar. 1972. p. 117–122. (1)

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291. SERGEANT, D. E., 1972. Some coastal mammals – their habitats and status, p. 157–160. *In* Coastal Zone, Vol. 1. Selected background papers. Water Manag. Serv., Dep. Environ. (5)

292. SAUNDERS, R. L. 1973. Salmonid aquaculture in Norway. Atl. Salmon J. 1973(1): 8–13. (6)

293. MITCHELL, E. D. 1972. Balaenopterine or finner whales, p. 24–30. *In* A. Seed [ed.] Baleen whales: in eastern North Pacific and arctic waters. Pacific Search Books, Seattle, Wash. (5)

294. SMITH, T. G. 1973. Management research on the Eskimo's ringed seal. Can. Geogr. J. 86(4): 118 125. (5)

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Journal of the Fisheries Research Board of Canada

Guide to Authors

A more detailed guide on preparation of manuscripts from theses is available from the Office of the Editor.

Editorial Practices

The *Style Manual for Biological Journals* (3rd ed. American Institute of Biological Sciences, 3900 Wisconsin Ave. NW., Washington, D.C.) is used as the authority in matters of form. The standards for spelling are: *Webster's Third New International Dictionary* and *le Grand Larousse Encyclopédique*. Titles of periodicals are abbreviated as in the *Biological Abstracts* list. References to literature are made by the name-and-year system. The *Journal* follows the names and spelling recommended in *A List of Common and Scientific Names of Fishes from the United States and Canada* (Third Edition, 1970), Special Publication No. 6 of the American Fisheries Society.

Notes are distinguished from *papers* on the basis of scope or completeness, rather than quality, of the research. They may be on problems with narrow, readily defined limits; on work that is largely confirmatory; on fishing gear or methods, or research techniques; on advances in knowledge arising as by-products of broader studies; on progress in projects that were discontinued; or on preliminary findings that warrant publication before problems are resolved. They may be organized with as much flexibility as papers except that they may have no centered headings. They should take no more than four pages in the *Journal*.

Series titles should be avoided. An *abstract* is required. Authors are encouraged to submit abstracts in both English and French; those submitted in one language only are translated by the *Journal*.

Line drawings are preferably made with black india ink on white drawing or tracing paper or on coordinate paper with blue grids. All lines, symbols, letters, and numerals must be neat, and at least 1 mm high when the illustration is reduced to the appropriate size. Drawings should be grouped to facilitate comparisons. Originals must be submitted and should be less than 50 cm in the greater dimension for full-page illustrations, and proportionately smaller for those taking less than a page. Drawings must not be rolled for mailing.

Photographs should be printed on glossy paper with a wide range in tone. They should be cropped, squared, and mounted on white cardboard, with no spaces between those arranged in groups.

Galley proof is sent to the author, and he is responsible for detecting errors in printing as well as in content.

Fifty *reprints*, without covers, are supplied free. Additional copies may be ordered when the galley proof is returned. A charge $30.00 per page is made for articles published. When submitting a manuscript, an author should state that his institution will accept this charge.

Checklist on Manuscripts

Attention to the following questions will expedite appraisal of manuscripts by referees and editors.

Are the findings, interpretations, and conclusions adequately documented and relevant to the purpose of the study?

Are all the tables and figures needed, and organized to facilitate comparisons? Are there inconsistencies between tables or figures and the text, or within the text? Should some of the data be made available separately, in a manuscript report or at a data repository? If you use statistical analysis are the statistics subordinate to the biology?

Would any of the text be clearer if condensed? Are summary statements given at the beginnings of sections and paragraphs, and are details in sections and paragraphs relevant to their topics? Does the organization of the manuscript follow logically from the statement of purpose in the introduction?

Does the *title* encompass the content of the report?

Does the *abstract* give the essentials of the new knowledge?

Is the *introduction* largely limited to the scope, purpose, and rationale of the study? Is review of the literature limited to defining the problem?

Are details of *materials and methods* limited to what scientists need in understanding the design of the study and in judging adequacy of the data?

Are generalizations on the *results* adequate? Are findings distinguished from inferences from them?

Is *discussion* limited to interpretation and significance of the findings?

Journal of the Fisheries Research Board of Canada

Guide des Auteurs

On peut se procurer au bureau du Director de la publication un guide plus détaillé pour la préparation de manuscrits à partir de thèses.

Dispositions Générales

Le *Style Manual for Biological Journals* (3e éd., publié par l'American Institute of Biological Sciences, 3900 avenue Wisconsin N.O., Washington, D.C.) sert de guide quant à la forme de présentation. Le *Webster's Third New International Dictionary* et le *Grand Larousse Encyclopédique* font autorité pour l'orthographe des mots. Les titres de périodiques sont abrégés suivant les *Biological Abstracts*. Les références bibliographiques dans le texte doivent suivre le système nom de l'auteur-année. Pour les noms de poissons et leur orthographe, le *Journal* suit les recommandations contenues dans *A List of Common and Scientific Names of Fishes from the United States and Canada* (Troisième édition, 1970), Publication spéciale No. 6 de l'American Fisheries Society.

Les *notes* se distinguent des *articles* par la portée et le degré d'achèvement, plutôt que par la qualité des recherches. Les notes peuvent traiter de problèmes à portée restreinte et facilement définissables; de travaux qui en corroborent d'autres; d'engins et de méthodes de pêche, ou de techniques de recherche; de découvertes dérivées d'une recherche de plus grande envergure; de progrès accomplis dans l'exécution de projets abandonnés; enfin, de résultats préliminaires assez importants pour en justifier la publication avant la solution complète du problème. L'agencement des notes peut être aussi flexible que celui des articles, sauf qu'elles ne doivent pas avoir d'en-têtes de paragraphes centrés. La longueur ne doit pas dépasser quatre pages.

On doit en général éviter les *titres en séries*. L'auteur doit fournir un *résumé*. Si possible, le résumé devra être produit en anglais et en français; le *Journal* se charge de la traduction des résumés soumis en une seule langue.

Les *dessins au trait* doivent être éxécutés de préférence à l'encre de Chine sur papier à dessin blanc, sur papier à calquer ou sur papier quadrillé bleu. Lignes, symboles, lettres et chiffres doivent être soignés et mesurer au moins 1 mm de hauteur lorsque la figure est réduite à la dimension voulue. On groupera les dessins de façon à faciliter les comparaisons. Les dessins originaux doivent accompagner le manuscrit, et ne doivent pas dépasser 50 cm dans le sens le plus long s'ils représentent une figure devant couvrir une page entiere; ils seront proportionnellement plus petits pour des figures de moins d'une page. Les dessins doivent être postés à plat.

Les épreuves de *photographies* doivent être tirées sur papier glacé à gamme de ton étendue. Elles doivent être coupées, dressées et montées sur carton blanc, sans laisser d'espace entre celles qui sont disposées par groupes.

Les *épreuves en placards* sont adressées à l'auteur et il lui incombe de corriger toute erreur d'impression ou de contenu.

Cinquante *tirés à part*, sans couverture, sont fournis gratuitement. L'auteur peut profiter du renvoi des épreuves en placards pour commander des tirés à part supplémentaires. Les frais sont de $30.00 par page pour la publication des articles. Quand un auteur soumet un manuscrit, il doit spécifier que son institution accept les frais.

Liste de Contrôles pour Manuscrits

Une attention particulière aux questions suivantes facilitera l'évaluation des manuscrits par les arbitres et les éditeurs.

Les découvertes, interprétations et conclusions sont-elles bien documentées et pertinentes au but de l'étude?

Les tableaux et figures sont-ils tous nécessaires et agencés pour faciliter les comparaisons? Y a-t-il contradiction entre les tableaux ou les figures et le texte, ou dans le texte même? Est-ce que certaines données devraient être présentées séparément, dans un rapport manuscrit ou dans un dépôt de données? Si vous faites une analyse statistique, la statistique cède-t-elle le pas à la biologie?

Le texte y gagnerait-il en clarté s'il était plus condensé, en tout ou en partie? Contient-il des exposés sommaires au début de chaque section ou paragraphe, et les détails de ces sections et paragraphes sont-ils pertinents au sujet traité? La marche du manuscrit est-elle conforme à la logique énoncée dans l'introduction?

Le *titre* est-il concis, tout en étant représentatif du contenu du rapport?

Le *résumé* donne-t-il l'essentiel des connaissances nouvelles?

L'*introduction* se limite-t-elle à une esquisse de la portée, du but et des raisons de l'étude? La revue de la littérature se limite-t-elle à la définition du problème?

La section *matériel et méthode* contient-elle le minimum de détails qui permettront aux autres scientifiques de saisir les grandes lignes de l'étude et de juger de la valeur des données?

Les généralisations sur les *résultats* sont-elles adéquates? Permettent-elles de distinguer entre constatations et déductions?

La *discussion* est-elle limitée à l'interprétation et à l'évaluation des découvertes?

Journal of the Fisheries Research Board of Canada

Guide for Typists Preparing Copy

Read "Guide to Authors" in the current volume of the *Journal*. When in doubt about how to type or arrange details, follow *Journal* practice.

Type the manuscript on white bond paper, not flimsy, preferably size 21.5 × 28 cm (8.5 × 11 inches). If possible, use paper with the lines numbered in the margin. Leave all margins at least 2.5 cm wide.

Double-space all parts of the manuscript, including tables, captions for illustrations, footnotes, and the reference list. Underline only material that is to be printed in italics. Indent the first line of each paragraph in the text and of each footnote.

In titles and headings, capitalize only the first word and proper names and adjectives. For small capitals, use small letters.

Indicate all text footnotes by superscript arabic numerals. Number them consecutively throughout the manuscript, starting with those on the title page. Place each footnote immediately below the reference to it, separating it from the text by horizontal lines.

On the first page type only the title, the authors' names and affiliations, related footnotes, and the running head (see Appendix A). Type the abstract on a separate page (see Appendix B). Number all pages, beginning with the title page and including those for tables and captions for illustrations.

Have the author check the finished manuscript, and send the ribbon copy and another clear copy to the Office of the Editor.

Tables: Examine the current volume of the *Journal* to see how tables are set up (see Appendix C). Note especially the following concerning *numbered tables*:

Type each on a separate page, using paper without the lines numbered.

Number them with arabic numerals.

Use horizontal lines above and below the headings and below the columns, and seldom elsewhere. Never use vertical lines; leave extra spaces instead.

Indicate table footnotes by superscript small letters and type them below the table.

Place the tables after the list of references.

Where each table is first referred to, type in the margin "Table – near here."

Note that *text tables* are not numbered, are typed with the text, and seldom need horizontal lines (see Appendix C).

Illustrations: Send the *original* and two clear copies of each illustration with manuscript. At the lower left of each figure and copy, give the author's name and the figure number. Also, type each caption with its figure for identification. For photographs, type this information on a strip of paper and fasten it to the back of the print. Do not write or type on the print itself. Also, type the captions in succession on a separate page, headed "Captions for illustrations." Put this page at the end of the manuscript.

Where each figure is first referred to, type in the margin "Fig. – near here."

Mathematical Expressions, Equations, and Formulas: Leave three spaces above and below lines that have much material in superscripts, and above and below equations and formulas. In the various expressions, place each component in its correct position (see Appendix D).

Show all symbols clearly. In the margin, spell out Greek letters the first time they occur, and distinguish between the small letter l and the numeral *one*, and between the capital letter O and the numeral *zero*. Make other explanatory notes similarly.

References: Check the text to see that all references in the list are referred to. Type the reference list, double-spaced, in the style used in the *Journal* (see Appendix E). Names of journals are abbreviated as in the *Biological Abstracts* list; if an abbreviation is in doubt, type the name in full.

Spellings: About 100 words common in fisheries journals are listed in Appendix F.

Appendices: Appendices A to F are available on request from the Office of the Editor.

Journal of the Fisheries Research Board of Canada

Guide pour les secrétaires d'auteurs

Lisez le "Guide des Auteurs" reproduit dans l'édition courante du *Journal*. Si vous avez des doutes sur la façon de dactylographier le texte ou d'en agencer les détails, suivez la pratique du *Journal*.

Dactylographiez le manuscrit sur papier blanc de bonne qualité, et non sur papier pelure, mesurant de préférence 21.5 × 28 cm (8.5 × 11 pouces), laissant toujours une marge d'au moins 2.5 cm. Si possible, employez un papier avec lignes numérotées en marge.

Tout le manuscrit, y compris tableaux, légendes de figures, renvois et références bibliographiques, devra être dactylographié à double interligne. Ne soulignez que les mots qui devront être imprimés en italique. Mettez en retrait la première ligne de chaque paragraphe du texte et de chaque renvoi.

Dans les titres et les en-têtes, n'employez la majuscule que pour le premier mot et les noms propres. Pour les petites majuscules, employez les minuscules du dactylographe.

Indiquez tous les renvois du texte par des chiffres arabes suscrits. Numérotez les renvois consécutivement par tout le texte, à commencer par ceux de la page titre. Placez chaque renvoi directement sous sa référence, le séparant du texte par des lignes horizontales.

La première page ne doit contenir que le titre de la publication, le nom et l'affiliation de ou des auteurs, les renvois appropriés et le titre courant (voir Appendice A). Dactylographiez le résumé sur une page séparée (voir Appendice B). Numérotez chaque page, à commencer par la page titre, et y compris celles qui contiennment les tableaux et la légende des figures.

Voyez à ce que l'auteur vérifie le manuscrit final, et soumettez la première copie et une seconde copie suffisamment claire au bureau du Director de la publication.

Tableaux: Consultez une copie du *Journal* pour la composition des tableaux (voir Appendice C). Portez une attention particulière à ce qui suit au sujet des *tableaux numérotés*.

Dactylographiez chaque tableau sur feuille séparée, vous servant de papier sans lignes numérotées.

Numérotez les tableaux en chiffres arabes.

Tracez des lignes horizontales au-dessus et au-dessous des en-têtes et au-dessous des colonnes, rarement ailleurs; ne tracez jamais de lignes verticales; laissez plutôt des espaces supplémentaires.

Indiquez les renvois dans les tableaux par des minuscules suscrites et placez les renvois au bas du tableau.

Placez les tableaux à la suite des références bibliographiques.

A l'endroit où le tableau est mentionné pour la première fois, indiquez dans la marge "Tableau – près d'ici."

Remarquez que les *tableaux dans le texte* ne sont pas numérotés, sont dactylographiés avec le texte et ne requièrent que rarement des lignes horizontales (voir Appendice C).

Figures: Expédiez avec le manuscrit le *dessin original* et deux copies propres de chaque figure. Au coin inférieur gauche de chaque original et copie, inscrivez le nom de l'auteur et le numéro de la figure. De plus, annexez à chaque figure la légende qui lui est propre, pour fin d'identification. Dans le cas de photographies, dactylographiez l'information sur une lisière de papier que vous collerez au dos. N'écrivez pas à la main ou à la machine sur la photographie même. En plus, dactylographiez les légendes, dans l'ordre, sur feuille séparée, intitulée "Légendes des figures." Intercalez cette feuille à la suite du texte.

A l'endroit où chaque figure est mentionnée pour la première fois, inscrivez en marge "Fig. – près d'ici."

Equations, formules et expressions mathématiques: Laissez trois espaces au-dessus et au-dessous des lignes renfermant des chiffres ou des lettres suscrits et souscrits, ou encore au-dessus et au-dessous d'équations et de formules. Placez chaque composante des différentes expressions dans la position qui lui est propre (voir Appendice D).

Indiquez clairement tous les symboles. Epelez en marge les lettres grecques, la première fois qu'elles apparaissent. Faites une distinction entre la lettre l et le chiffre *un*, et entre la majuscule O et le chiffre *zéro*. Insérez de la même façon toute autre note explicative.

Références: Vérifiez le texte afin de vous assurer que toutes les références apparaissant dans la liste bibliographique sont bien mentionnées dans le texte. Dactylographiez à double interligne dans le style en usage dans le Journal (voir Appendice E). Les noms de revues sont abrégés suivant les *Biological Abstracts*: en cas de doute, écrivez le nom au long.

Orthographe: Une liste d'environ 100 mots communément employés dans les périodiques sur les pêches est donnée en Appendice F.

Appendices: On peut se procurer une copie des Appendices A à F sur demande au bureau du Director de la publication.

ABBREVIATIONS USED IN THE INDEX

J – Journal of the Fisheries Research Board of Canada

B – Bulletin of the Fisheries Research Board of Canada

AR – Annual Report of the Fisheries Research Board of Canada

R – Review of the Fisheries Research Board of Canada

CHN – Circular of the Board's Halifax Laboratory

CJG – Circular of the Board's Biological Station, St. John's, Newfoundland

CNG – Circular of the Board's Biological Station, Nanaimo, B.C. (general series)

T – Technical Report

MSP – Miscellaneous Special Publication

S – Studies series

A – Interpretive Articles series

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